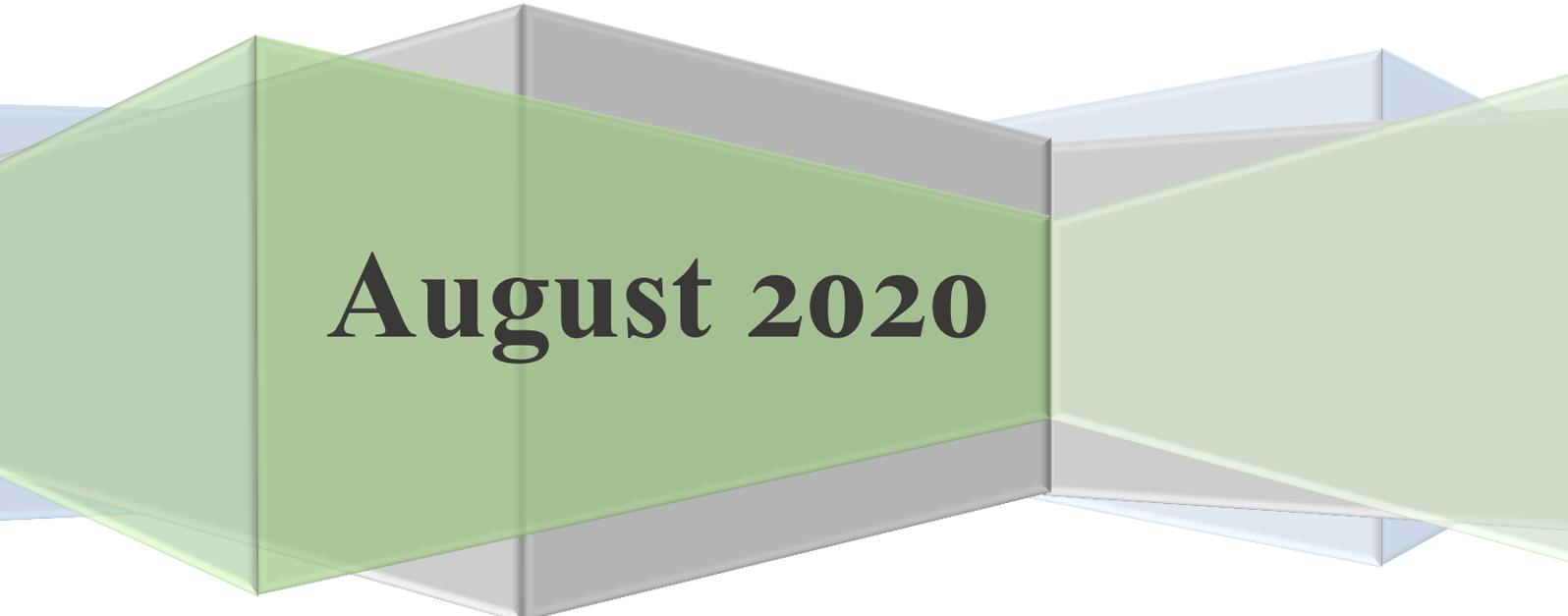


Master Thesis for the Environment and Society Studies Program
Nijmegen School of Management
Radboud University

The sustainability challenge at Dutch universities

An assessment of actual sustainability efforts and
how these are ranked

L.P. van de Locht



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The sustainability challenge at universities

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**rijksuniversiteit
 groningen**

Preface

This thesis finalizes my master degree in Environment and Society Studies at the Radboud University Nijmegen. Over the years, organizations and sustainability have increasingly drawn my attention, which is why I enjoyed conducting this research. The research took from March until the beginning of August 2020.

In the beginning, I was quite optimistic with regard to finding an internship. However, the first organization took a month to let me know that they had no spot available for an intern. The second organization told me the same thing after one and a half month, which is why I became a little nervous. Fortunately, I got into contact with Guido van Gemert at the Radboud University who recognized the potential of my research proposal. After some adaptations I could finally start writing my master thesis.

I would like to thank Guido for his optimism and support for the past few months. He encouraged me to forge ahead where others, including myself, lost their confidence in me bringing the research to a good end.

Likewise, I would like to thank dr. Mark Wiering for guiding me through the process. He provided me with critical feedback that has enabled me to elevate the whole research to a higher level. He reasoned in opportunities instead of limitations, which allowed me to go forward.

Lastly, I would like to thank all participants in my research for their valuable time and knowledge, as I would not be able to complete it without them. Despite the Coronavirus that impacted our daily lives, they took the effort to help me, for which I am extremely grateful.

I hope you enjoy reading this master thesis.

Luuk van de Locht

Nijmegen, August 2020

Executive summary

Universities are increasingly contributing to the sustainability challenge by integrating sustainability into research, curricula, and daily operations. Over the years, universities have formulated strategies on how to adequately incorporate sustainability. The implementation of these strategies is communicated internally and externally. However, some universities have found a way to effectively do this, where other universities seem to struggle. The performance of universities has been measured by numerous ranking lists for over decades, but measuring universities' sustainability performance is relatively new.

All ranking lists consider certain indicators to be important, which are used to assess how universities are doing in terms of their sustainability ambitions. However, there might be a discrepancy between what universities actually do, and what is measured by ranking lists with regard to sustainability efforts. The aim of this research was to provide more insight into this discrepancy, so it can be better specified what needs to be improved.

This research focused on three Dutch universities: the Radboud University, Wageningen University & Research, and the University of Groningen. After zooming in on their strategy, implementation, and communication of sustainability efforts, they were compared on how they score on ranking lists. Several *influencing factors* seem to have an impact on universities in terms of the outcome of their sustainability efforts, and these are context specific. For example, the internal pressure by students and personnel is more present in specialized universities than in classical universities.

Another aim of this research was to provide a recommendation for the Radboud University. The main findings were that the university should continue participating in ranking lists, as these should be regarded as learning experiences. Moreover, the university should improve on its internal and external communication on sustainability in order to raise awareness. The university should also focus on developing new best practices which can be shared among other universities. Lastly, in collaboration with other universities, the Radboud University should invigorate the government to instigate a new covenant, as this will provide universities with clear directions and targets for the future.

Key words: *Sustainable universities, strategy, implementation, communication, ranking lists*

Table of contents

1. Introduction	3
1.1. Problem statement	3
1.2. Ranking lists	4
1.2.1. SustainaBul	4
1.2.2. Times Higher Education (THE) Impact Ranking	5
1.2.3. Transparency benchmark	6
1.2.4. UI GreenMetric	7
1.3. The selected universities	7
1.4. Research aim and -questions	8
1.5. Relevance	11
1.6. Thesis structure	12
2. Theoretical background	13
2.1. Sustainability strategy	13
2.2. Integrated Reporting Framework	14
2.3. Criteria for sustainable universities	16
2.4. Influence of ranking lists	18
2.5. Conceptual framework	19
3. Methodology	21
3.1. Research philosophy	21
3.2. Research strategy	22
3.3. Zooming in on the universities	23
3.3.1. Radboud University Nijmegen	23
3.3.2. Wageningen University & Research	24
3.3.3. University of Groningen	24
3.4. Operationalization	24
3.4.1. Strategy	25
3.4.2. Implementation	26
3.4.3. Communication	26
3.4.4. Assessment	26
3.5. Data collection	28
3.5.1. Document analysis	28
3.5.2. Semi-structured interviews	28
3.6. Data analysis	29
3.7. Validity and reliability	30

4. Results	31
4.1. Document analysis of universities	31
4.1.1. Radboud University	32
4.1.2. To summarize	36
4.1.3. Wageningen University & Research	36
4.1.4. To summarize	41
4.1.5. University of Groningen	42
4.1.6. To summarize	46
4.2. Document analysis of ranking lists	46
4.2.1. SustainaBul	46
4.2.2. Times Higher Education Impact Ranking	49
4.2.3. UI GreenMetric	49
4.2.4. Transparency benchmark	50
4.2.5. To summarize	52
4.3. Interviews with universities	53
4.3.1. Strategy	54
4.3.2. Implementation	56
4.3.3. Communication	59
4.3.4. To summarize	60
4.4. Interviews with ranking lists	61
4.4.1. Assessment	61
4.4.2. Universities' perception of the ranking lists	63
4.4.3. To summarize	66
4.5. A comparison between the universities	69
5. Conclusion	72
6. Discussion & limitations	75
References	78

1. Introduction

1.1. Problem statement

Sustainability is a concept that has been subject to debate for over decades, gaining an increasing amount of attention from all over the world. Nowadays, it has become a central paradigm in contemporary society. A global awareness has emerged as industrialization and economic growth disclose all kinds of detrimental consequences, such as pollution, loss of habitat, loss of biodiversity, and diminishing resources (Sharp, 2002). The term has gained popularity, as climate change is considered to be one of the most predominant global threats for life on Earth in the years to come (IPCC, 2007). It is believed that following this path will have disastrous effects throughout the world, and therefore it is argued that society should move away from hyper-consumption to a situation in which sustainable consumption is promoted (McDonagh, 1998).

This call for change has shifted the attention of the general public (among others), towards universities, as these are expected to provide scientific knowledge on how sustainability and corporate social responsibility (CSR) can play a guiding role in society (Rodríguez Bolívar et al., 2013; Dyer and Dyer, 2017; Bizerril et al., 2018). Since the Stockholm Declaration of 1972, the need for environmental education was recognized, in which a number of sustainability declarations were developed (Wright, 2002). Students and personnel have pressured universities to address sustainability issues by using their knowledge to strengthen national and international debates (Helferty & Clarke, 2009; Sharp, 2002). Universities have two important missions to fulfill. First, they should prepare students with the right competences to tackle the sustainability challenge society faces, and second, they should lower the environmental impact of their own activities (del Mar Alonso-Almeida et al., 2015). Over the last decade, universities have taken responsibility in applying sustainability principles, promoting them on a larger scale (Merkel & Litten, 2007). However, commitments in promoting sustainability throughout the campus often fail to be implemented adequately (Bekessy et al., 2007). It is therefore of vital importance to gather knowledge on how universities are able to not only commit to non-binding sustainability efforts, but also to integrate them into their institutional systems.

In order to measure to what extent universities are sustainable, numerous ranking lists have been developed. Universities can be assessed in what ways they are contributing to the sustainability challenge. Sustainability might for example be high on the agenda of a university, in which sustainability goals have been incorporated in the strategic plan. It is also possible that a university has formulated sustainability goals in their strategic plan, but that it fails to successfully implement them, or that it fails to adequately communicate them. In any way, universities are ranked on their sustainability efforts, based on several factors. However, these factors vary among ranking lists, which of course gives different outcomes. Ranking lists typically use certain factors, but it is possible that elements are overlooked that actually make a university sustainable. This remains to be determined. Do the ranking lists really provide a correct reflection of the university's level of sustainability? Whenever there is a discrepancy between the actual sustainability efforts at universities and the assessment of ranking lists, the problem arises that sustainability at universities is not addressed in the way that it should be. If universities score high on ranking lists but are not sustainable in reality, the policies revolving around sustainability are deficient. If universities properly address sustainability but are poorly assessed, future policies might be focused at meeting the assessment criteria and thereby overlooking crucial elements in addressing sustainability. This possible discrepancy is the focus of this research.

In the Netherlands, four ranking lists are frequently used to assess the sustainability efforts of universities. These are SustainaBul, Times Higher Education (THE) Impact Ranking, Transparency benchmark, and the UI GreenMetric. These ranking lists create an image of how universities are doing in several ways. They all have a link with sustainability, and more transparency on how activities are carried out. They will be elaborated upon in more detail in the following section.

1.2. Ranking lists

1.2.1. SustainaBul

The ranking list SustainaBul was developed in 2012 by 'Studenten voor Morgen' (figure 1 shows an example of 2019). This ranking list focuses on higher educational institutions. It was created with the intention to encourage universities to become more sustainable and to construct a best practice to further stimulate sustainable solutions (studentenvoormorgen.nl). Universities are incentivized to generate new ideas and the created knowledge can be shared

among other universities. SustainaBul makes a distinction between four themes: *sustainability in research, education, business operations*, and *the integral approach* (the latter is the combination of the aforementioned themes, although it is removed in 2020). The ranking list has been launched by students, which also emphasizes the desire from students to make universities more sustainable (Helferty & Clarke, 2009; Sharp, 2002). The fact that students are actively involved, tends to speed up sustainable developments at universities.

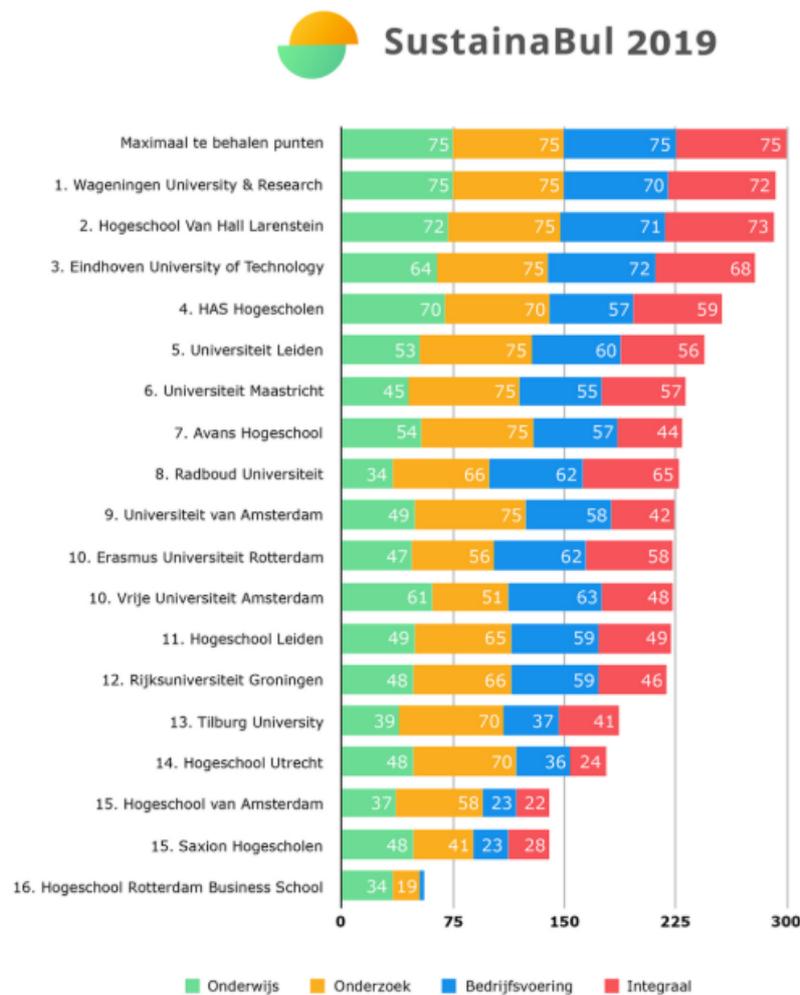


Figure 1. SustainaBul ranking 2019. Retrieved from Studentenvoormorgen.nl

1.2.2. Times Higher Education (THE) Impact Ranking

This ranking list assesses universities against the United Nations’ Sustainable Development Goals (timeshighereducation.com). The Impact Ranking aims at three broad areas: *research, outreach, and stewardship*. THE has provided data on university excellence across the globe for five decades. Their data and benchmarking tools have been used by the most prominent universities to help them achieve their strategic goals. The first edition of the Impact Ranking in 2019 included more than 450 universities from 76 countries. This, in combination with the

developed expertise, makes the THE Impact Ranking an important indicator in assessing whether universities are contributing to reducing their impact on the environment. In figure 2, the score of the Radboud University is shown, as it is the first university to participate out of three that are central in this research.

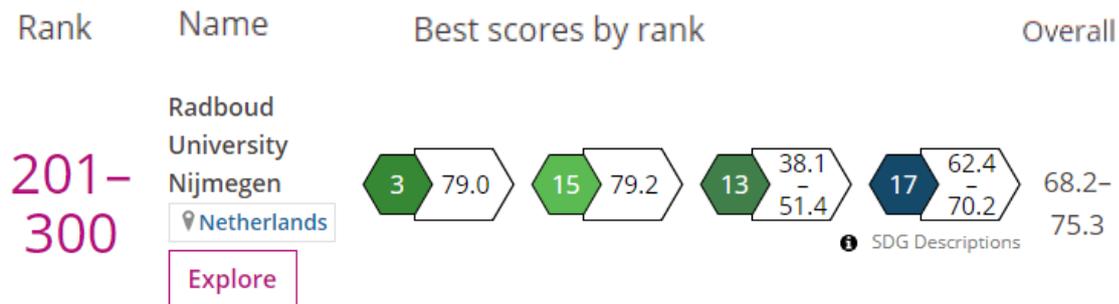


Figure 2. Radboud University on THE Impact Ranking 2020. Retrieved from timeshighereducation.com

1.2.3. Transparency benchmark

The Dutch government values the transparency of organizations in the Netherlands on societal issues. The Transparency benchmark assesses organizations on their reporting, encouraging them to be as transparent as possible. The criteria in this benchmark are based on the Sustainable Development Goals (SDGs), with a focus on the value chain and impact organizations have on their environment. The participating organizations get a better understanding of how to adequately report their activities, which enhances their trustworthiness towards the public. Moreover, these organizations can compare their reporting with other organizations in order to improve their own transparency. The most innovative organization is rewarded by the Ministry of Economic Affairs and Climate. This benchmark is important in stimulating organizations in the Netherlands to act in a more responsible way towards society. In table 1, the scores of the three universities on the Transparency benchmark are shown.

Table 1. Universities on the Transparency benchmark 2019. Retrieved from [Transparantiebenchmark.nl](https://transparantiebenchmark.nl).

Posi...	Bedrijf	Behaald...	Sector	Gem. score...
46	Wageningen University & Research	62.2	Universiteiten	24.3
86	Rijksuniversiteit Groningen	49	Universiteiten	24.3
169	Radboud Universiteit Nijmegen	20	Universiteiten	24.3

1.2.4. UI GreenMetric

The UI GreenMetric is an initiative of Universitas Indonesia (UI), that was launched in 2010. The aim of the ranking is to address policies on sustainability efforts of universities in order to combat global climate change. The ranking list is built up of six categories. These are *Setting & Infrastructure*, *Energy & Climate Change*, *Waste*, *Water*, *Transportation*, and *Education & Research*. These categories are measured by collecting numeric data from thousands of universities worldwide to arrive at a single score that reflects the sustainability efforts made by the university in the form of its policies and programs. The UI GreenMetric is similar to the other ranking lists in encouraging universities to become more sustainable. In this thesis, three universities were selected, these will be elaborated upon in the next section. In table 2, the WUR and the University of Groningen are presented. The Radboud University did not participate in the UI GreenMetric ranking of 2019. The last time they participated in the GreenMetric was in 2018. The UI GreenMetric is considered a prominent and valuable ranking list for universities in the Netherlands, which is why it is incorporated in this research.

Table 2. UI Greenmetric ranking 2019. Retrieved from Greenmetric.ui.ac.id.

Rank 2019	University	Country	Total Score	Setting & Infrastructure	Energy & Climate Change	Waste	Water	Transportation	Education & Research
1	Wageningen University & Research	Netherlands 	9075	1125	1800	1800	1000	1550	1800
8	University of Groningen	Netherlands 	8475	925	1575	1800	1000	1525	1650

1.3. The selected universities

The primary focus of this thesis is on the Radboud University. However, two other universities have been selected in order to draw a comparison, thereby getting a better understanding of the current situation. Within the domain of sustainability, universities have different strategies on how to incorporate them into their institutional systems. Consequently, some universities are better able to do so than others. There are numerous reasons for the discrepancies between universities when looking at their sustainability efforts. As argued, the strategy might have a weaker focus on sustainability, or the strategy does prioritize sustainability efforts, but these fail to be implemented accordingly. Another reason might be that these sustainability efforts are not communicated well enough.

As mentioned, the first university that is selected in this research is the Radboud University. As will become clear, it scores relatively lower on ranking lists (18th on the SustainaBul ranking list 2020, 169th on the Transparency benchmark 2019), although it has formulated a profound strategy on how to become more sustainable in the future. It is as yet unclear what the impediments are for not reaching the top of the ranking lists. The second university is the Wageningen University & Research (WUR). It is a specialized university and has proven to be one of the most sustainable universities in the world (GreenMetric, n.d.). This university can function as a benchmark and perhaps a best practice for other universities. The third university that is addressed in this research is the University of Groningen. Like the Radboud University, it is a classical university which has a clear vision on how to address sustainability issues in the future (rug.nl). The university claims the 86th place on the Transparency benchmark. On the SustainaBul ranking list, it was awarded the 19th place in 2020. However, it competes with the best universities in the world, as it scored 8th on the GreenMetric ranking list, and could therefore be an example to other universities. The universities are further elaborated upon in section 3.3.

1.4. Research aim and -questions

It must be stressed that the term ‘sustainability’ in this thesis is regarded as environmental sustainability. This implies the efforts made by universities to reduce their ecological footprint in the broadest sense (e.g. addressing climate change, managing waste, lowering energy- and water consumption, etc.). Henceforth, the term ‘sustainability’ refers to environmental sustainability.

The aim of this thesis is to provide more insight into the discrepancy between actual sustainability efforts at universities and the assessment by ranking lists, so it can be better specified what needs to be improved. This thesis contributes to the body of knowledge by offering the Radboud University a recommendation on what should be focused on in its strategy, a recommendation on how to better implement it, and a recommendation on how to better communicate it. This is based on an analysis of how universities are assessed by ranking lists. In their strategy, universities might focus on certain elements based on what is indicated by ranking lists. Some elements might be overestimated or perhaps redundant. If this is not the case, it is important to assess whether universities communicate their strategy adequately. Moreover, ranking lists might reveal that universities score high on a certain

element, which turns out to be lower in reality. This would imply that more effort should be put into improving the score on that element, instead of regarding it as sufficiently addressed (as assumed by ranking lists). If these are not assessed well, the outcomes may be (partly) negligible. This thesis assesses the sustainability strategy of the Radboud University, how this strategy is implemented, communicated, and what ranking lists focus on when assessing universities in terms of their sustainability efforts. These elements are then compared to the WUR and the University of Groningen.

Therefore, the following research question is formulated:

How do the three universities address sustainability and what influence do ranking lists have on these efforts?

The research question can be broken down into four subsets, consisting of their own sub-questions. The four subsets are the strategy, the implementation, the communication, as designed by universities, and the assessment thereof by ranking lists. A better understanding of these four subsets helps in providing an answer to the main research question. As the aim of this research is on providing a recommendation for the Radboud University, a fifth sub-question has been added.

The first question is what the strategies of the Radboud University, the WUR, and the University of Groningen are within the domain of sustainability. Based on this, the following sub-question can be formulated:

Sub-question 1: What strategies have been formulated by the universities in order to become sustainable in the future?

It could be the case that the university is not doing enough in terms of their attempt to become sustainable in the future. The result would be that the university scores lower on the ranking lists.

The second sub-question zooms in on the implementation part within the university regarding sustainability. A clear strategy might be in place, but the university is not able to properly implement it. It is important to address the implementation part, as this has an influence on the outcome on ranking lists. The second sub-question can be formulated as follows:

Sub-question 2: How have the universities implemented their strategies in the past and how are these going to be implemented in the future?

When universities are able to successfully implement their sustainability strategies, they are likely to score higher on ranking lists. Moreover, if universities have shown to adequately implement their strategies in the past, they might be able to do so in the future as well. This could indicate that they might consistently score high on the ranking lists.

The third sub-question emphasizes the communicational aspect of universities' sustainability efforts. A clear strategy might be in place which has been successfully implemented, but this needs to be properly communicated as it is part of the assessment by ranking lists. The third sub-question would then be formulated as follows:

Sub-question 3: How do universities communicate their sustainability efforts internally and externally, and how do they interact with ranking lists?

Here, internally means within the university, so towards students and personnel. With externally is meant towards the public. Ranking lists often base their input on the external communication by universities when assessing the extent to which they are sustainable. Therefore, not communicating adequately would result in a lower score on ranking lists. Moreover, universities might disagree with the ranking process or outcome, which raises the question how they interact with ranking lists in order to reach consensus.

The fourth sub-question assumes that a clear strategy is formulated, has been implemented successfully, and is communicated adequately, but that the assessment thereof gives a deceptive image. Therefore, the fourth sub-question is formulated as follows:

Sub-question 4: What do ranking lists focus on, and in what way do these ranking lists resemble sustainability efforts at universities?

It is possible that the university has formulated a strategy and acts correspondingly, but that the ranking lists overlook certain elements, measure the wrong elements, or weigh these elements improperly. The outcome on the ranking lists would therefore be flawed. This means

that some universities will rank lower, whilst in reality, they are effectively addressing the sustainability challenge, and vice versa.

Sub-question 5: What can the Radboud University learn from other universities and the ranking lists?

This sub-question helps in developing a recommendation for the Radboud University. The way other universities deal with sustainability might give new insights. Moreover, a better understanding of the ranking lists can determine whether the Radboud University is adequately performing in terms of sustainability, or whether this is not the case.

1.5. Relevance

It is relevant to provide insight in the link between how sustainability is perceived by universities, and how sustainability is perceived by ranking lists. Universities can learn from the outcomes as long as these critically reflect the activities revolving around sustainability. It makes it possible to take more accurate measures. Moreover, due to pressure from students, personnel and the public, universities have a certain social obligation to address the sustainability challenge (Ralph & Stubbs, 2014). Their collective knowledge and research capacity creates a moral responsibility to create a more sustainable future (Moore, 2005; Nicolaides, 2006).

The societal contribution of this thesis is aimed at making sustainability efforts at universities more visible. Policies revolving around sustainability might be decent, but ranking lists denote them as insufficient or inadequate. In this situation, the ranking lists give universities a lower score, thereby implying that the university needs to improve. If the ranking lists are in order, and universities receive a low score, the universities' sustainability policies will have to be revised in order to better address sustainability. Either way, sustainability efforts at universities are reconsidered and critically reflected upon. The current efforts might be fine, which gives the university confidence in forging ahead the way it did. If the efforts need to be revised, the university will take a closer look at what needs to be improved. This thesis will give universities an indication of where they are in their efforts and what could be the next step in tackling the sustainability challenge. Ultimately, a recommendation will be given to the Radboud University on how to improve the current situation. The academic contribution

of this thesis is the focus on the link between universities and ranking lists. It expands on the knowledge of sustainability at universities and attempts to provide more insight into the relationship between sustainability efforts and the assessment thereof.

1.6. Thesis structure

In the next section, relevant literature will be examined to get a better understanding of what is known about this topic. In section 3, the methodology will be discussed. It is important to justify how data has been gathered, and how it has been analyzed. In section 4, the findings of this research are presented. After that, a conclusion will be provided in which the sub-questions and ultimately the research question are answered, which are then reflected upon in the discussion and limitations section.

2. Theoretical background

In this section, a theoretical framework will be developed, based on relevant literature in the field of sustainability efforts at universities and how this is assessed.

2.1. Sustainability strategy

A clear sustainability strategy is rather important, because it sets a vision, objectives, and goals that enable the university to become sustainable as a whole (Wright, 2002). The culture of the university must be built around the core values, mission, and goals formulated in the strategy. As Tilbury & Cooke (2005) suggest: *“There is a need to link campus management to research, curriculum and administrative practice, such that a learning for sustainability approach is embedded across every aspect of institutional operations in a synergistic way”* (p.62). Galpin, Whittington & Bell (2015) have constructed a model that can be used as a roadmap to create a culture focused on sustainability. The model helps in identifying whether universities have a clear conceptualization of where they want to be in the future, and what needs to be done in order to get there. They suggest that when the mission, values, goals and strategy have been set, these must be reinforced by the employees. Only when these are embraced by the university as a whole, an effective sustainability program can be carried out. The model functions as a starting point for understanding how policies and strategies are shaped and reinforced by the organization as a whole. It can also be applied to universities in terms of their sustainability efforts. The model is shown in figure 3.

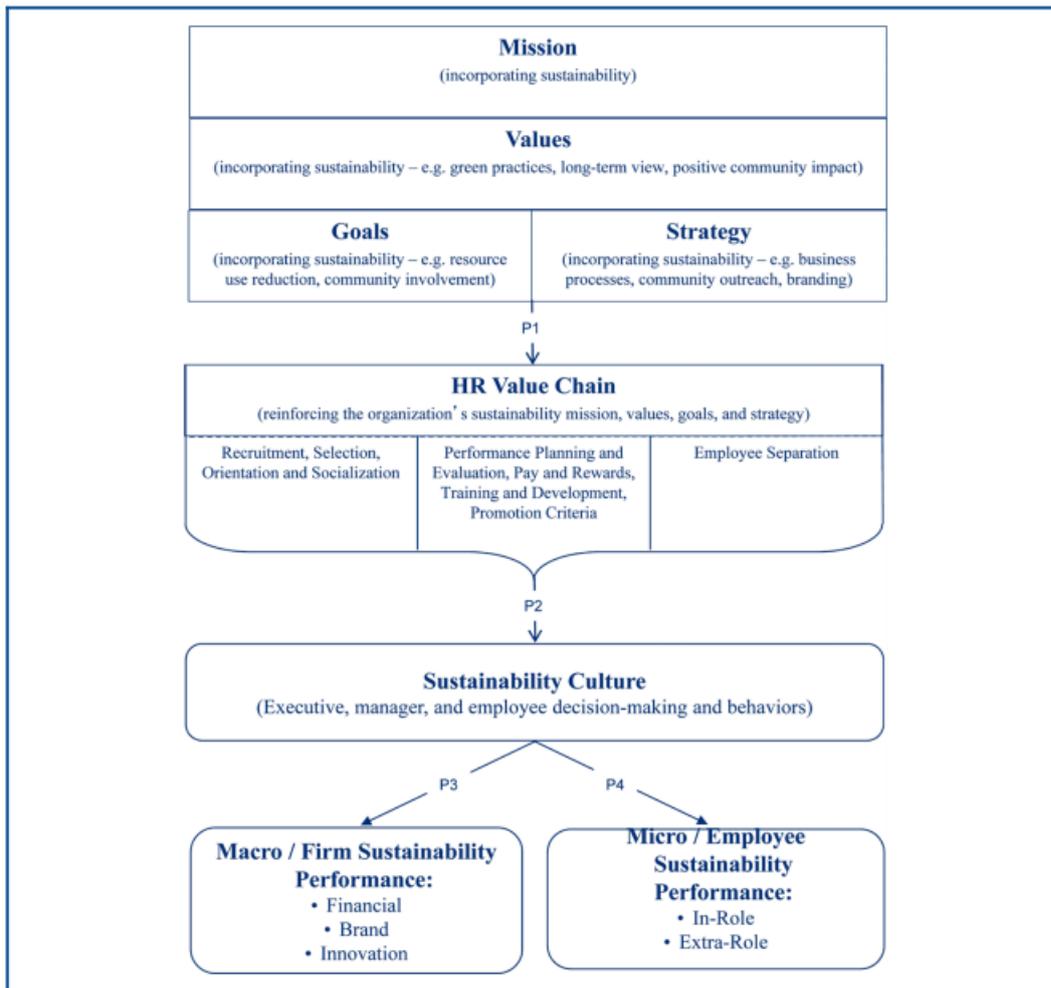


Figure 3. Culture of sustainability model. Based on Galpin, Whittington & Bell (2015).

2.2. Integrated Reporting Framework

Over the years, universities have been pressured to be more accountable and transparent with regard to sustainability. Sustainability reports are considered to be helpful tools to achieve both accountability as well as to improve social and environmental performance (Brusca et al., 2018, p.353). The same authors argue, however, that sustainability reporting is not yet at a mature stage. For that reason, Integrated Reporting has emerged as a new sustainability reporting concept. It was developed by the International Integrated Reporting Council (IIRC, 2013). The Integrated Reporting Framework (see figure 4) focuses on “*an organization's future value creation plans referring specifically to the organization's strategy, business model and various forms of capital (financial, manufactured, intellectual, human, social and relationship, and natural capital)*” (de Villiers et al., 2017, p.938). Moreover, the model allows for the inclusion of information about sustainability (Brusca et al., 2018).

The framework emphasizes the value created by an organization through the combination of strategy, governance, performance and the external environment (van Dijk, 2015). There are six capitals – financial, manufactured, human, social and relationship, intellectual, and natural – that constitute the resources organizations use to create value. In this thesis, the focus is on the natural capital, as it is aimed at addressing sustainability at universities in the Netherlands.

As was argued in the previous section, a university has a certain mission and vision with regard to its sustainability efforts. The Integrated Reporting Framework helps in understanding how to communicate the activities and capabilities, in this case related to sustainability, into outcomes. It is a continuous way of reporting with the aim to create value over time.

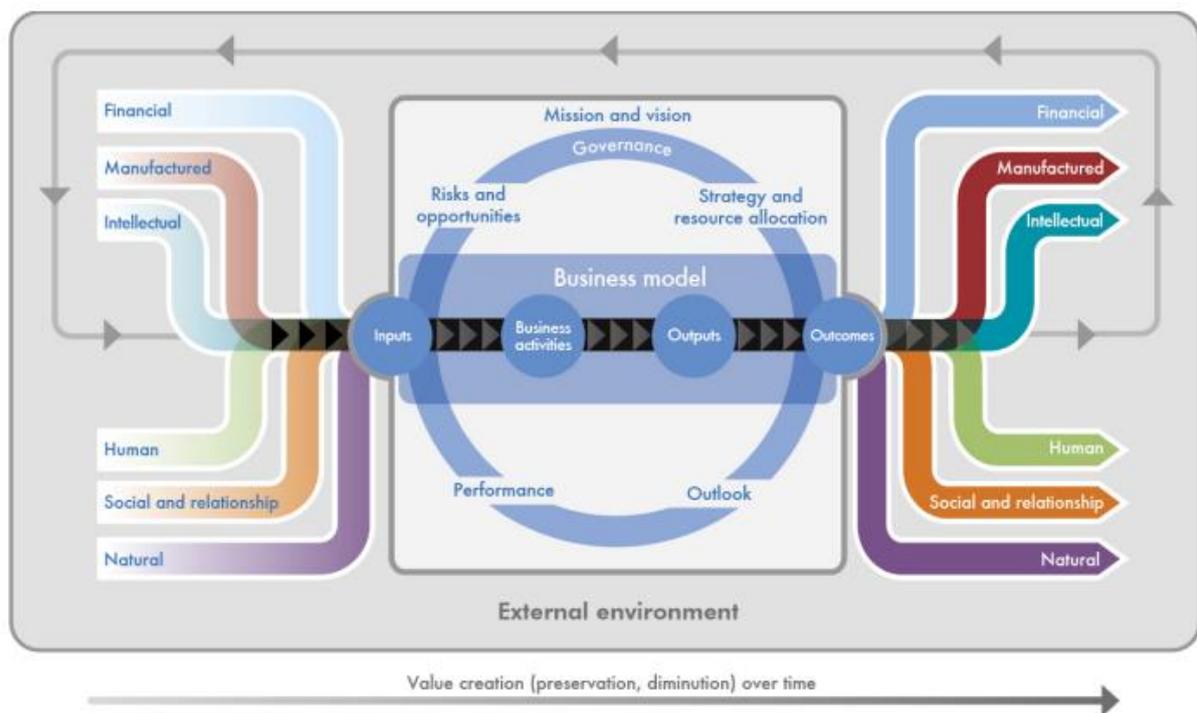


Figure 4. The Integrated Reporting Framework. Based on the IIRC (2013).

The mission and vision are translated into an action plan in which universities attempt to improve their sustainability activities. The performance of these activities are measured in accordance with the goals that have been set. A continuous flow of governance allows the process to improve. The performance on the activities is then communicated to the external environment.

2.3. Criteria for sustainable universities

Ranking lists have their own criteria when assessing to what extent universities are sustainable. However, it is not straightforward that these criteria of individual ranking lists are superior to other criteria. Li et al. (2018) have developed a model based on the Triple Bottom Line (TBL) approach, in which economic, environmental and social perspectives are centralized. This way, the key performance aspects of sustainability at universities can be revealed more easily. These have been formulated by reviewing and summarizing previous research (Li et al., 2018). A qualitative scoring method (QSM) has been used to identify the criteria that are important for sustainability at universities. After that, the authors used an analytical hierarchical process (AHP) to weigh the criteria. The weight attached to different criteria varies among universities, which is beyond the reach of this thesis. However, these criteria can be used in order to assess whether ranking lists incorporate them as well. If not, examining the other criteria used, might give an indication of whether they are more suitable or not. This creates a better understanding of the usefulness and quality of the ranking list. In figure 5, the different criteria and elements that are important for universities to become sustainable are shown.

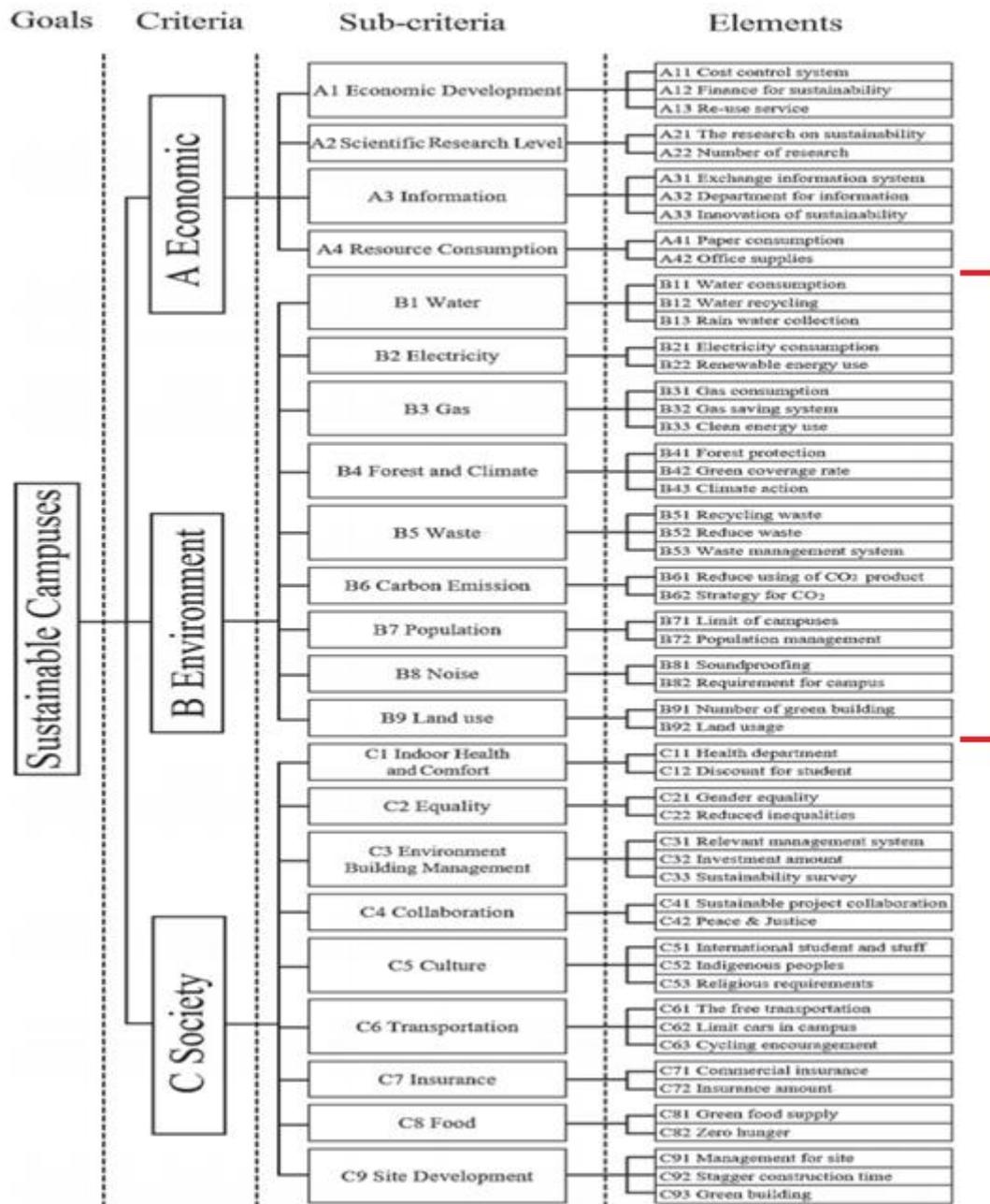


Figure 5. Criteria and elements of sustainable campuses. Based on Li et al. (2018).

In this thesis, the focus is on the environmental sub-criteria and elements as indicated by the red bracket. The sub-criteria are water, electricity, gas, forest and climate, waste, carbon emission, population, noise, and land use. These sub-criteria are further divided into 22 elements. These elements will be used to better understand how the three specific universities incorporate them into their strategic plan. Moreover, these elements will also guide the assessment of ranking lists and to what extent they take them into account, or whether the focus is on certain other elements. Based on this comparison, the contribution of ranking lists can be determined.

2.4. Influence of ranking lists

Ranking lists have often been heavily criticized. This is due to the fact that they do not provide relevant information to the groups they claim to serve (students and parents in the process of choosing the ‘best’ university). Moreover, rankings rely on quantitative indicators and proxies for statements about quality (Kehm, 2014). There is also skepticism towards what is actually ranked: reputation or performance. Reputation is considered a social construct, whereas performance is based on peer review. Therefore, this means that there is knowledge among academic peers about ‘who is the best’ (Kehm, 2014). Rankings are inherently subject to value judgments, so “*there is no such thing as an objective ranking*” (Hazelkorn, 2011, p.49). As a result, there are flaws and biases in the collected data. For example, weightings in a ranking are based on what the creator considers to be important, involving certain preferences. According to Bookstein et al. (2010), rankings are not consistent as they vary year after year.

It has proven to be difficult to define and assess sustainability across campuses, due to the ambiguities involving in operationalizing and standardizing environmental and social principles (Shriber, 2004). To phrase William McDonough: “*being less bad is not the same as being good*”. Often, sustainability assessment tools measure eco-efficiency (‘being less bad’), instead of true sustainability (‘being good’) (Fussler, 1996). When relying solely on eco-efficiency, it might appear that something substantive is being done, as it gives people the feeling that the environment is adequately considered (Onisto, 1999, p.41). As sustainability is a process instead of a destination, the tools to measure sustainability must focus on decision-making by asking about mission, rewards, incentives, and other process-oriented outcomes (Shriber, 2004).

However, ranking lists generally have a positive impact on organizations with regard to encouraging discussions, enabling them to evaluate their strategy to communicate sustainability, and providing a platform to communicate successes (Muli, 2013). They promote good practices and bring benefits to the entire higher educational system (Basso et al., 2017). Moreover, ranking lists enable universities to share best practices and to enhance the transparency of the university, giving clear information to stakeholders. When sustainability is properly implemented in a university, it translates into teaching inspired by sustainability, and doing research on sustainability. Teaching and research are the

fundamental activities of a university, but there are numerous actions that have an influence on both these activities. Ranking lists can be a way of encouraging universities to carry out a self-assessment in relation to several quality issues, including sustainability (Basso et al., 2017). It is clear that there are advantages and disadvantages with respect to ranking lists. Universities can have a different perception on the value of ranking lists, depending on what they consider to be important.

2.5. Conceptual framework

The mission, values, goals and strategy provide an understanding of what is important to the university, where it wants to go in the future, and how it will get there. Subsequently, these will be implemented at the operational level of the university. Based on Li et al. (2018), nine sub-criteria (water, electricity, population, carbon emission, forest & climate, gas, waste, noise, and land use) are important when it comes to organizational sustainability. These activities should be emphasized by universities when addressing the sustainability challenge.

Furthermore, the strategy and implementation are communicated by the university through websites and documents. This way, the university attempts to convey the message of taking an active attitude towards incorporating sustainable solutions. These are important indicators for ranking lists in their assessment of sustainability efforts at universities. In figure 6, the conceptual framework is shown. Elements from the aforementioned models are incorporated, with arrows that showcase causal relationships. For example, the mission of a university is translated into values and then into goals and a strategy. These are implemented at the operational level, in which the nine sub-criteria are addressed (top left). Universities communicate them, which is the primary input for ranking lists (middle right).

Moreover, the three universities are all subject to certain factors that have an influence on the organization. For example, the size of the university or the number of people working on sustainability is different among universities. These factors are typical characteristics that slowly change over time. They should be taken into account when looking at the universities, as the universities are substantially different organizations. In the conceptual model, these factors are indicated as *influencing factors* (bottom left).

Lastly, ranking lists (bottom right) communicate the scores of universities and generally provide feedback on these scores. The universities will use this information as an indicator on how they are doing in terms of their sustainability efforts. They will critically look at how they have scored on certain criteria. They will benchmark their scores with other universities in order to indicate how well they are performing. The universities might learn from one another through certain best practices. The next step is to integrate these *learning processes* into the organization to be able to improve in the future (top right).

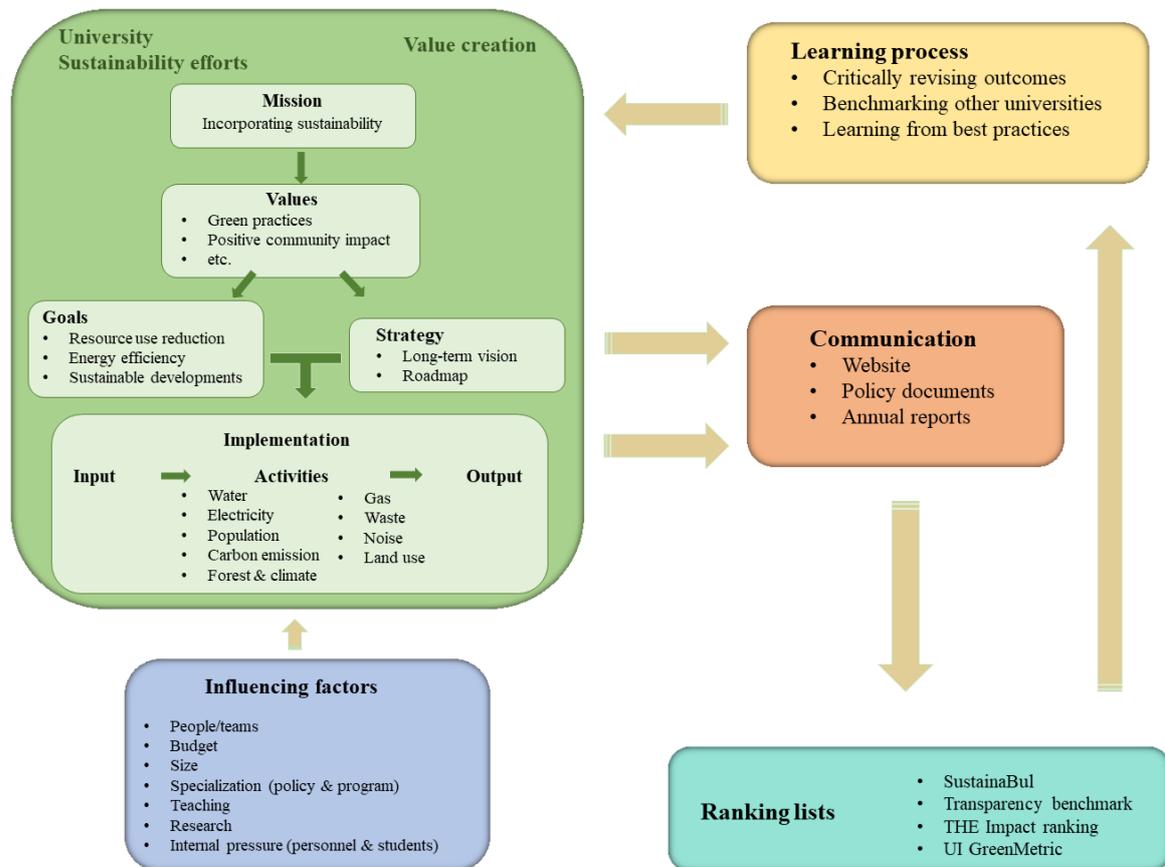


Figure 6. Conceptual framework

3. Methodology

3.1. Research philosophy

In scientific research, every researcher has certain beliefs or assumptions that guide the pursuit of knowledge, which is called the *philosophy of science* (Ponterotto, 2005). Guba & Lincoln (1994) refer to three fundamental questions: the *ontological*, *epistemological*, and *methodological* questions. *Ontology* refers to what the form and nature of reality are, and what can be known about them. *Epistemology* refers to the question of what the nature of the relationship is between the knower and what can be known. If, for example, a ‘real’ reality is assumed, the knower must be of objective detachment in order to be able to discover how things really are (Guba & Lincoln, 1994, p.108). *Methodology* refers to what procedure can be used to acquire knowledge. These three questions are guided by certain research paradigms. A research paradigm can be defined as “*a set of interrelated assumptions about the social world, which provides a philosophical and conceptual framework for the organized study of that world*” (Filstead, 1979, p.34).

In this research, *critical realism* is the guiding ontological perspective. It assumes that an apprehensive reality exists, which can be observed independently. However, this reality has been shaped over time by all sorts of structures. These structures are not fully observable as there are underlying conditions and contexts that constitute reality (Saunders, Lewis & Thornhill, 1996). The epistemological perspective is objectivist in nature, in which replicated findings are probably true, but are always subject to falsification (Guba & Lincoln, 1994). Reality can be apprehended as closely as possible, but never perfectly. In this research, the focus is on universities and their sustainability efforts on the one hand, and ranking lists and their assessment of sustainability efforts on the other. Universities monitor their sustainability efforts through all sorts of data and numerical statistics, which are independent of human apprehension. The same goes for the methodologies used by ranking lists when assessing universities on their sustainability efforts. These encompass analytical tools that are translated into quantified data. Therefore, a reality independent of human conception exists.

However, universities and their perception of sustainability efforts, as well as ranking lists with their assessment of these sustainability efforts, are inextricably linked with human conception and interpretation. These different human interpretations are the underlying factors that create a discrepancy between universities’ interpretation of sustainability efforts, and the

interpretation used by ranking lists. For example, universities have developed policies on sustainability, but these are based on what people within that specific university assume sustainability to be. The same goes for people who have constructed ranking lists. They have a certain perception of sustainability and based on their perception, they have constructed ranking lists as they are. However, there can be a disparity between these interpretations, and the aim is to unravel underlying factors. These underlying factors consist of the reasoning behind the numbers presented by universities and ranking lists.

3.2. Research strategy

The research strategy of this thesis is a multiple case study, in which three different universities are examined and compared. Moreover, several ranking lists are analyzed to see what elements are focused on and what elements might be missing. A case study implies that several carriers of a social phenomenon are studied in their natural setting in a certain period of time, using different sources of data in order to make a statement on what patterns and processes cause the phenomenon (Swanborn, 2013). In a case study, important elements of qualitative data collection are clustered, because it consists of a combination of open interviews, and/or a participating observation, and/or gathering documents. This combination is called *triangulation of methods*, enabling a thorough and in-depth investigation of a phenomenon, which can improve the quality of the data collection (Bleijenbergh, 2015). This is contrary to for example a survey in quantitative research, because this form of research requires several hundreds of units of analysis (Korzilius, 2000; Ragin, 1989). The case study also differs from the experiment in the sense that it is used during a certain period of time, varying from a few hours to a whole year. The experiment only relates to several demarcated ex-ante and ex-post moments of measurement (Bleijenbergh, 2015 p.47). The advantage of the case study is the fact that all elements that cohere with the phenomenon are included, creating a better depiction of the context. The other two research strategies might overlook these elements.

There exists a body of knowledge on sustainability at university campuses, and these have been carefully looked into in order to develop a conceptual framework that guides the understanding of the phenomenon. However, the link between strategy, implementation, communication, and ranking lists is still lightly touched upon. Therefore, this research adopts a combination of a deductive approach, in which theories are tested in the field, and an

inductive approach, in which theories are supplemented with data gathered in the field (Doorewaard, Kil & van de Ven, 2015). The theories used, provide guidance to a certain extent when conducting this research. However, in order to address the link between the concepts, new data is gathered aimed at developing a new theory. When exploring new phenomena through an inductive approach, it is essential to have some expectations, but these should be very limited. Phenomena are to be observed as open as possible to minimize the possibility of overlooking certain elements. However, some form of direction is required during the process of collecting data, as not all elements are relevant in the research (Bleijenbergh, 2015). This form of direction can be provided by what Blumer in 1954 called *sensitizing concepts*, as these allow for the process of collecting data to be somewhat aimed at relevant elements (Doorewaard, 2010; Corbin & Strauss, 2008; Boeije, 2005). These suggest the directions along which to look, and are to be elaborated upon and refined in the analysis, based on the empirical material gathered (Bleijenbergh, 2015 p.52).

This thesis is aimed at providing insight into the discrepancy between the current level of sustainability at universities, and how this is measured by ranking lists. There is a knowledge gap that has to be filled and in order to do so, an exploratory research can be useful. According to Stebbins (2001):

“Researchers explore when they have little or no scientific knowledge about the group, process, activity, or situation they want to examine but nevertheless have reason to believe it contains elements worth discovering. To explore effectively a given phenomenon, they must approach it with two special orientations: flexibility in looking for data and open-mindedness about where to find them.”

This flexibility and open-mindedness create the opportunity to find elements that might be useful in answering the sub-questions and ultimately the research question.

3.3. Zooming in on the universities

3.3.1. Radboud University Nijmegen

The Radboud University in Nijmegen has a clear set agenda on what it wants to achieve in terms of sustainability and when to achieve it (ru.nl). However, despite their efforts to become more sustainable in the future, they still lag behind on the SustainaBul ranking list and the Transparency benchmark. It must be mentioned that the Radboud University is not particularly specialized in a certain domain. In fact, the Radboud University is quite a broad

university, offering students a wide range of bachelors and masters. The university comprises approximately 23.000 students, making it a fairly large university, although there are several other universities in the Netherlands that are larger.

3.3.2. Wageningen University & Research

From 2013 to 2019 (with 2018 as an exception), Wageningen University & Research (WUR) achieved the highest score on the SustainaBul ranking list. Over the years, it has consistently ranked in the top three on the UI GreenMetric ranking list, and according to the Transparency benchmark, it is the most transparent university in the Netherlands. The question then is why this university is particularly sustainable, and why, if at all, other universities fall short. Perhaps the WUR can provide valuable insights for other universities. However, it is important to emphasize that the WUR is highly specialized in agricultural, bio-based, and environmental research. Three core themes within the university are *Health, Lifestyle & Livelihood, Food & Food Production, and Living Environment*. Therefore, the university as a whole is extensively geared towards addressing sustainability. The university offers bachelors and masters to almost 13.000 students, which makes it a relatively small university in the Netherlands.

3.3.3. University of Groningen

The University of Groningen comprises more than 30.000 students, making it one of the largest universities in the Netherlands. Similar to the Radboud University, the University of Groningen has a broad spectrum of educational trajectories. This might indicate that it is more difficult for universities to score high on ranking lists and adequately address sustainability efforts, but this is yet to be determined. In 2019, it achieved the 8th place on the UI GreenMetric ranking, but has dropped from the 6th place in 2016 to the 19th place in 2020 on the SustainaBul ranking list. However, on the Transparency benchmark, the University of Groningen scores 2nd after the WUR, which showcases that a non-specialized university can score high on sustainability ranking lists.

3.4. Operationalization

In the first section, a central research question and sub-question were formulated. These sub-questions help in providing an answer to the central question and were formulated as follows:

1. *What strategies have been formulated by the universities in order to become sustainable in the future?*
2. *How have the universities implemented their strategies in the past and how are these going to be implemented in the future?*
3. *How do universities communicate their sustainability efforts internally and externally, and how do they interact with ranking lists?*
4. *What do ranking lists focus on and in what way do these ranking lists resemble sustainability efforts at universities?*
5. *What can the Radboud University learn from other universities and the ranking lists?*

As was argued, strategy, implementation, communication, and the assessments thereof are the focus of this thesis. Now, it is important to translate these concepts into items that can be measured. Put differently, these abstract concepts need to be turned into concrete questions in order to be able to say something about these concepts. This is called *operationalization*. The operationalized concepts have been derived from their theoretical definition. This way, they are applicable to this research, which looks as follows:

Strategy: a central, integrated, externally oriented concept of how the university will achieve its sustainability objectives (Luehrman, 1998, p.52).

Implementation: introducing a previously defined sustainability objective into the university which must then assimilate it (David, 2001, p.464).

Communication: the university produces and negotiates meanings surrounding sustainability, which takes place under specific social, cultural and political conditions (Schirato & Yell, 1997).

Assessment: ranking lists assemble, summarize, organize, interpret, and possibly reconcile pieces of existing knowledge, and communicate them with universities so that they can improve their sustainability efforts (Parson, 1995, p.463).

3.4.1. Strategy

Based on the operational definition and the theoretical framework, the strategy of universities consists of *goals* that are aspired in a certain period of time. Questions about these goals can relate to what they are, how they are formulated and how they are going to be achieved. It is about the long-term strategy of the university how to become sustainable in the future. When considering how the strategy is to be achieved in the future, *resource allocation* plays an important role. For example, the financial budgets that a university has available for

sustainability might be an indicator, but also the number of personnel that are actively involved in addressing sustainability. It might also be important to examine how the goals and resources are *evaluated* or *adjusted*. This gives a better understanding of how universities cope with (unexpected) change.

3.4.2. Implementation

The way strategies are implemented can say something about the effectiveness of policies revolving around sustainability at universities. It indicates what intended strategies are successfully carried out, making a university actually sustainable. This can be investigated by looking at *data* that show the savings, efficiency, etc. These are often captured in annual reports. Moreover, it is possible that universities lay more focus on certain *criteria* than others (e.g. water, electricity, forest and climate, CO₂, etc.). It is beyond the reach of this research to investigate what weight criteria should have, but this different weighing can have an impact on the final score on ranking lists as one might be considered more important than another.

3.4.3. Communication

Successfully implementing a certain strategy needs to be communicated well, because ranking lists often attribute scores based on available data within the university. Being transparent about information as a university is valued by parties within, as well as by parties outside the university. One way of understanding how universities communicate their sustainability efforts is by looking at the *medium* being used. This can be the website or certain documents that are available. Another way is looking at *departments* or *teams* that are specifically focused on communicating sustainability and what universities are doing to achieve the goals that were set in the strategic plan.

3.4.4. Assessment

The assessment of the sustainability efforts at universities is carried out by organizations that have constructed ranking lists. Throughout the world, universities have adopted their own strategy that is believed to solve the sustainability challenge. In order to measure to what extent these universities are successful in their effort, ranking lists have been designed. However, in this thesis, these ranking lists are looked into as well to get a comprehensive idea about the accuracy of these lists. These have been included as there might be universities that are more successful in addressing the sustainability challenge than is stated in the ranking

lists, or vice versa. One way of checking these ranking lists is by looking at the *elements* that are used. Here, it is important to look at what elements are included and what elements are excluded from the ranking list. This reveals whether there is a focus on specific variables, or whether variables have been left out. This allows for ensuring the validity of the ranking lists. Another aspect that is focused on is the *professionality* of the ranking list. This addresses the question of who fills in the ranking list and whether this person or these persons were neutral in their assessment. Finally, ranking lists can provide *feedback* to universities, but not every ranking list might include feedback documents due to different reasons. An overview of these concepts and variables are provided in the table below.

Table 3. Overview of the operationalization.

Concept	Variable	Values
Strategy	Goals	- Long term - Short term
	Resource allocation	- Budget - Personnel
	Evaluation/adjustment	- Monitoring
Implementation	Data	- Numbers - Documents
	Criteria	- Priority list - Weights
Communication	Medium	- Website - Documents
	Departments/teams	- Number of people
Assessment	Elements	- Included/excluded - Weights
	Professionality	- Filling in (who) - Filling in (based on)
	Feedback	- Documents

3.5. Data collection

The research methods used in this thesis are semi-structured interviews and document analysis. In a short period of time, a significant amount of data can be collected. An interview gives a clear picture of how a person in the organization experiences a social phenomenon (Bleijenbergh, 2015). Document analysis can provide knowledge about the past. It might be useful in getting a comprehensive idea of what has been decided upon in the past, and what the plans are for the future. For example, the strategic plans of the three universities can provide useful information. The data collection in qualitative research is characterized by an iterative-parallel process, which implies that results in the analysis might lead to new insights that can be used to focus more on certain elements in the collection of data (Bleijenbergh, 2015 p.56). These steps are repeated to refine the collected data.

3.5.1. Document analysis

The three universities that are investigated in this thesis all have a website with information on their ambitions and how to realize them. This provides knowledge about the strategy that a specific university pursues. The website also provides information on what has been done in the past to carry out the sustainability strategy. Moreover, strategic documents present a rich amount of data as well, enabling a comprehensive understanding of the plans and activities on sustainability. Documents used by ranking lists also provide information on how universities are assessed. These are interpreted to acquire insight into the criteria and their underpinnings. In total, 17 documents have been looked into in order to be able to draw a solid comparison.

3.5.2. Semi-structured interviews

In semi-structured interviews, the formulation of questions has been done upfront. This way, the interview can be steered in a certain direction, while still being enabled to deviate from the questions. This gives a more elaborate depiction of the social phenomenon. The interviews are eventually recorded and transcribed in order to filter out the relevant information. Moreover, the interviews focus on getting a better idea of how the sustainability strategy of universities is implemented and communicated externally to be able to give a recommendation on how this can be improved.

In order to achieve this, policymakers, managers, and other personnel within the universities are asked to give a more elaborate explanation of how their university attempts to realize that.

This way, it becomes clear how the university translates their strategy into a plan of action in terms of sustainability. In this thesis, sustainability managers and communication officers were interviewed. Additionally, creators of the ranking lists are interviewed to get a thorough understanding of how the lists are constructed, what elements are incorporated, and why specifically those elements are used. It can then be assessed whether the ranking list is sufficiently focused on what it is supposed to measure and whether other elements are missing or not. In total, 13 interviews were conducted: three representatives per university, and one representative per ranking list. A more elaborate description of the interviewees and their function has been summarized in table 11 in section 4.2.

3.6. Data analysis

After the interviews have been transcribed, *coding* can be helpful. It allows the researcher to make a connection between what empirical data has been collected, and what theories or claims can be made. Based on these codes, certain patterns can be recognized and how these correlate with one another. As Miles & Huberman (1994) stated: “*Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study. Codes are attached to ‘chunks’ of varying size – words, phrases, sentences, or whole paragraphs, connected or unconnected to a specific setting*” (p.56). The starting point here is to stay close to the empirical data, implying the concepts respondents use to articulate their experiences of the social phenomenon. After that, the concepts are abstracted until they connect to the level of the research question. These steps are known as *open coding*, *axial coding* and *selective coding* (Boeije, 2005, Bleijenbergh, 2015).

The first step is *open coding*, in which a fragment in the transcription is labeled that characterizes the content of the fragment. This way, the text can be divided into several fragments. The next step is *axial coding*. The goal here is to find a link between open codes, in order to distinguish between themes (hence this is also called *thematic coding*). These themes overarch the open codes at a higher abstraction level. The last step is *selective coding* based on the operationalization, where fragments with the same theme are compared to recognize patterns in the social phenomenon. These are highlighted with a color. This way, a connection between empirical data and theory can be made, which helps in answering the research question.

3.7. Validity and reliability

Validity can be ensured by neutrality of the researcher in which biases are avoided as much as possible. Another way is by using *triangulation* as mentioned in section 3.2. This sheds light on the research object from multiple points of view, increasing the likeliness that what is expected to be measured, is actually measured (Bleijenbergh, 2015).

Reliability can be difficult to acquire in qualitative research, because in the social sciences, humans are the units of observation. However, according to Carlson (2010), reliability can be increased by reviewing detailed interview responses in the transcribed notes from audio recordings (*member checking*), and by verifying the interpretive accuracy.

4. Results

In this section, the results from the document analysis and the interviews are presented. First, document analysis was conducted on available data that was derived from universities and ranking lists. This gave an impression of important elements that could be elaborated upon in the interviews. In the case of the universities, the focus was on strategy, implementation, communication, and the relation of the university with ranking lists. In the case of the ranking lists, the focus was on what elements were mainly emphasized and how the ranking list was built up. For example, how the different elements are weighed, who assesses the results, and to what extent the ranking list provides feedback to universities. The universities are addressed first, followed by the document analysis of the ranking lists. The universities can be assessed on their sustainability efforts by looking at the nine criteria. These were water, electricity, gas, forest & climate, waste, carbon emission, population, noise, and land use.

Second, the results of the interviews are discussed. The interviews provided additional clarifications on unclear or unaddressed parts in the documents that were analyzed. During the interviews, the researcher focused on information that was not touched upon in the document analysis. This way, a comprehensive body of knowledge was developed that enabled the researcher to answer the research question.

4.1. Document analysis of universities

In table 4, an overview is provided of the documents used for document analysis. These have been derived from the three universities.

Table 4. Overview of the documents used

Radboud University	Wageningen University & Research	University of Groningen
Website	Website	Website
Energiejaarverslag 2018	MVO-verslag 2018	Roadmap 2015-2020
Energiebeleidsplan	Milieumeerjarenplan 2018-2020	Jaarverslag duurzaamheid 2018
Duurzaamheidsagenda 2016-2020	Milieujaarverslag 2018	Duurzaamheid in de faculteiten (2018)
Duurzaamheidsagenda voortgangsrapportage 2017	Strategisch plan	Strategisch plan 2015-2020
Jaarverslag 2018	Jaarverslag 2018	

4.1.1. Radboud University

Water

The Radboud University scored relatively low on the ranking lists. However, in terms of its strategy, it has formulated a clear goal for the future on sustainability. It wants to reduce water consumption by 2% every year, for example by adapting water installations in the Huygens building, and by adequately managing the Energy Consumption System. This is a system that projects real time values per building, in order to be able to better monitor consumptions and to intervene when necessary. In figure 7, the water consumption of the Radboud University is shown in m³. The reduction can be assigned to savings measures in laboratories, which take up about a third of the water consumption. An example of a savings measure is the water cooling that has been replaced by air cooling.

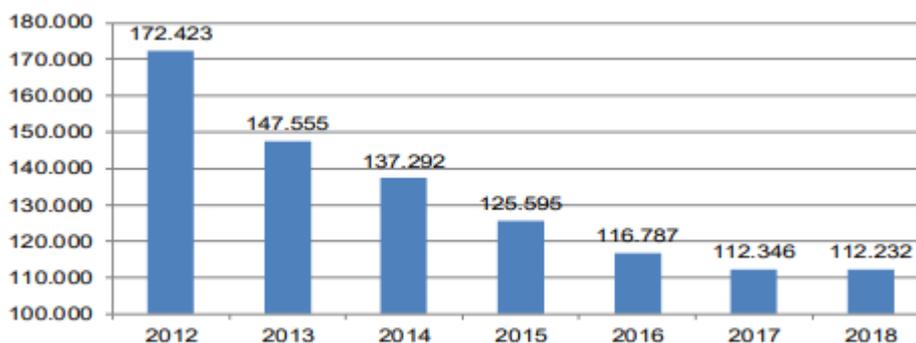


Figure 7. Drinkwater consumption of the Radboud University in m³. Retrieved from Energiejaarverslag 2018, Radboud Universiteit.

Electricity

The goal of the Radboud University in terms of electricity is an annual reduction of 2%. In 2014, it joined the National Climate Coalition and thereby committed itself to become climate neutral in 2050. In order to achieve this goal, among others, it has planned to increase the amount of solar panels, make more use of the thermal energy storage, and purchase more sustainable energy. In collaboration with the Radboudumc, the university aims to become co-owner by investing in sustainable energy projects. As of this moment, electricity usage takes up 80% of primary energy, so the university recognizes room for improvement. In 2019, the university made plans to intensify the performance of the energy policy. For the most part, electricity is used to regulate temperature, lighting, ventilation, ICT, and research. Due to the increase in solar panels, the thermal energy storage, and the demolition of several old buildings, the energy consumption dropped. In 2018, The energy savings were 8,0%, which is the highest percentage of energy savings realized over the past ten years. In the same year, the *absolute* savings were 3,9%, due to excess consumption. Absolute savings consist of the total savings minus excess consumption. Excess consumption arose from an increase in devices and by extended opening hours.

Gas

Primary energy consists of electricity and gas. Gas takes up about 20% of the primary energy demand at the Radboud University. The thermal energy storage reduces the dependence on gas and the university is planning on attaching all buildings at the campus to it. Moreover, the pressure on the environment is planned to be reduced by sustainable buildings and renovations. The classification system NIBE maps to what extent materials used for buildings are sustainable ranging from one to seven, in which a score of one puts little pressure on the environment and seven a significant amount. The Radboud University attempts to stay below a score of four, unless there are weighty reasons to use materials with a score of four. In 2016, 2,6 million m³ of gas was consumed out of which about 95% can be attributed to the heating of rooms. Due to the thermal energy storage, the replacement of boilers, and better insulation, a reduction in gas consumption could be realized as can be seen in table 5. Moreover, the construction of new buildings should meet the BREEAM-certification requirements. This is a quality mark of buildings with minimal environmental impact. Examples of this are the Grotius building that consumes 45% less energy than the norm, and the Maria Montessori building currently under construction which will be completely energy neutral. Despite an increase of students and personnel, the Radboud is consistently lowering gas emissions.

Table 5. Overview of energy consumption at the Radboud University. Retrieved from Energiejaarverslag 2018, Radboud Universiteit.

Energieverbruik Radboud Universiteit		2012	2013	2014	2015	2016	2017	2018
Aardgas	m3/jaar	3.421.341	3.147.191	2.383.073	2.513.058	2.596.518	2.476.212	2.378.335
Aardgas gecorrigeerd	m3/jaar	3.303.271	2.890.003	2.732.366	2.637.399	2.604.905	2.600.095	2.512.639
Elektriciteit	kWh/jaar	34.990.087	35.598.429	35.500.992	35.847.605	35.910.194	36.236.105	35.703.312
Elektriciteit gecorrigeerd	kWh/jaar	35.717.001	35.365.816	36.268.743	35.583.550	35.685.652	36.231.294	34.751.824
Diesel	kg/jaar	230	5.989	3.115	6.129	4.000	3.657	4.913
Primaire energie	GJ/jaar	423.206	420.250	395.066	402.428	405.542	404.653	396.814
Primaire energie gecorrigeerd	GJ/jaar	426.011	410.017	413.031	403.987	403.787	408.531	392.501
CO2-emissie	ton/jaar	27.102	26.996	25.564	26.014	26.194	26.173	25.683
Waterverbruik	m3	172.423	147.555	137.292	125.595	116.787	112.346	112.232
Gebouwooppervlak	m2	302.385	300.977	317.350	323.474	323.474	331.371	320.145
Studenten en medewerkers	aantal	23.861	23.011	23.941	24.734	24.925	25.888	27.033

Forest & Climate

The Radboud University joined the National Climate Coalition and aims to be climate neutral in 2050. It is expected that this goal can be achieved by maintaining the annual energy savings of 2% and by increasing its share in the Dutch electricity park by 2,5% annually. It also aims to collaborate in sustainability projects. The university recognizes its unique green location and seeks to reap the benefits by cultivating a parklike campus. Moreover, the university has adopted a *Trias Energetica* approach, in which the following three steps are taken into account when addressing energy issues:

1. Energy demand should be limited
2. Use of sustainable resources
3. Efficient use of finite resources

This approach is believed to be crucial in achieving a climate neutral university in 2050.

As for the forest coverage at the Radboud University, there was very limited data available.

Waste

The Radboud University aims to reduce energy consumption by 2%. This is not only possible by energy savings and an increase of sustainable energy, but also by chain efficiency. This implies procurement, transport and waste. In order to reduce waste, the university has arranged a thrift store in which materials are not thrown away, but are reused instead. The goal is to reduce the waste flows to diminish pressure on the environment. Moreover, waste is reduced by using an integrated approach, in which the procurement department carefully

assesses sustainability criteria when purchasing goods. Examples are paper used for printers, food used for catering, and the materials used for packaging. The university also seeks to collaborate with waste disposal parties to shorten and better align waste flows. Events have also gained more attention with regard to waste management. This implies a sustainable approach towards food, water, materials, waste, and energy. Over the past few years, the amount of waste produced by the Radboud University fluctuated around 840.000 kilograms. Lowering this amount is also a goal for the university in the years to come.

Carbon emission

The Radboud University aims to achieve a reduction in CO₂ emissions of 80-95% (relative to 1990), corresponding with the target of the Paris Agreement. The university has canceled its CO₂ emission rights from the trading system. This has been done in order to prevent other parties using these rights in the future to emit CO₂ into the atmosphere. A cost-benefit analysis has been conducted in collaboration with the municipality of Nijmegen, the province of Gelderland, and the Radboudumc. The results were that hybrid heat pumps and the attachment to the thermal heating storage yield the highest CO₂ reduction. Therefore, this has become an important goal for the university.

Population

In October 2019, the Radboud University comprised 22.976 students, and 2.735 FTE personnel. It is unclear what the maximum capacity of the university is, but these numbers indicate that the university is fairly large. A higher population at the campus results in a higher pressure on the environment. There is no data available on population limits and population management.

Noise

The Radboud University aims to maintain a good relationship with local residents, which is why transparency is given on upcoming events or construction works. Any complaints are directly taken care of by coordinating communication flows. There is no data available on any further measures taken on soundproofing or on the campus requirements.

Land use

The Radboud University focuses on a green and spacious character at the campus. Projects have been initiated to emphasize the importance of a parklike appearance. Moreover, the

construction of new buildings at the Radboud University should meet the BREEAM-certification requirements. This is a quality mark of buildings with minimal environmental impact. Examples are the Grotius building that consumes 45% less energy than the norm, and the Maria Montessori building currently under construction which will be completely energy neutral.

4.1.2. To summarize

The Radboud University has formulated a clear strategy on sustainability and for the most part it has achieved the goals that have been set. Examples are water use, energy consumption, and CO₂ emissions that have been reduced, although waste remained approximately at the same level. The Radboud University still has to improve on the long term, but it has certainly taken steps in the right direction when it comes to sustainability efforts. Therefore, the fact that the university scores relatively low on ranking lists can be considered unexpected. Although the university does not excel at sustainability efforts, it certainly has set clear goals and acts correspondingly, which indicates that the strategy and the implementation should not be the problem.

4.1.3. Wageningen University & Research

Water

The WUR has set goals to systematically reduce water use in the years to come. Over the years, saving water was realized by reusing if possible, and by using groundwater as a substitute. Furthermore, the WUR has integrated water-saving measures for cooling, toilets, and showers, which resulted in a structural reduction in water use as can be seen in table 6. Water use in 2018 was 10,4% less than in 2017. The WUR has also conducted samples to check if waste water conformed to the norms. There were some exceedances, but these have been analyzed and evaluated to prevent them from happening in the future again, which has also been reported to authorities. A significant reduction in water use can be seen in the table.

Table 6. Water use at the WUR in 2005 and between 2016-2018. Retrieved from Milieujaarverslag 2018, Wageningen University & Research.

Jaar	2018	2017	2016	2005
Leidingwater (m ³)	167.062	186.372	220.374	234.503
Bronwater (m ³)	27.711	30.638	27.912	139.518
Prestatie	% 2018 t.o.v. 2005	% 2017 t.o.v. 2005	% 2016 t.o.v. 2005	
Leiding (%)	-29%	-21%	-6%	
Bron (%)	-80%	-78%	-80%	

Electricity

Just like the Radboud University, the WUR aims to achieve an annual energy reduction of 2%. It has committed to the Meerjarenaafspraken energie-efficiëntie (MJA3), which is geared towards realizing an energy-efficiency improvement of 30% in the period of 2005-2020. Therefore, the university focused on saving energy and generating sustainable energy. In 2018, an energy reduction of 2,2% was realized relative to the year before. Despite the growing number of students, less energy was used. Sustainable energy is generated by multiple sources as can be seen in table 7. Three windmill parks in Lelystad controlled by the WUR, bio-energy, the thermal heating storage, and solar panels realized a 106% sustainable energy generation relative to the total amount of energy used. This indicates that the WUR has taken big steps in addressing alternative resources for the energy demand.

Table 7. Sustainable energy generation of the WUR in 2018. Retrieved from Milieujaarverslag 2018, Wageningen University & Research.

Bron	2018	2017	Eenheid
Windturbines Lelystad ¹	563.100	548.319	GJ
Bio-WKK's ²	29.419	45.517	GJ
WKO Wageningen Campus	79.798	68.120	GJ
Zonnepanelen ³	4.736	1.895	GJ
Totaal	677.052	663.850	GJ
Energiegebruik	623.193	637.391	GJ
Gecorrigeerd energiegebruik (voor klimaatinvloeden)		652.079	GJ
% duurzame opwekking t.o.v. totaal energiegebruik	106%	104%	

Gas

The WUR has set the goal to become energy neutral in 2030. Therefore, the amount of gas used has to be reduced as well. When new buildings are constructed, the aim is to avoid natural gas. Instead, the university adopts electric heat pumps when possible, and since 2018 it invests €100.000,- annually in gas-saving measures. In table 8, the energy use of the WUR is shown, in which electricity, gas, and carbon emissions are included. A structural decline in energy use was realized until 2018, and the WUR is devoted to continue this line. The significant reduction in tons of CO₂ in 2011 can be assigned to the transfer to green energy. It indicates a positive trend to achieve the goal of becoming energy neutral in 2030.

Table 8. Energy use at the WUR in 2005 and between 2009-2018. Retrieved from Milieujaarverslag 2018, Wageningen University & Research.

Energiegebruik	Elektra (kWh)	Gas (Nm ³)	Energie (GJ)	Ton CO ₂
2018	50.385.528	5.362.499	623.193	9.606
2017	51.558.971	5.477.413	637.391	9.812
2016	54.930.781	6.302.302	693.845	11.290
2015	55.660.591	6.503.170	706.771	11.650
2014	57.129.458	6.273.363	712.717	12.095
2013	59.167.202	7.864.487	781.416	14.976
2012	59.559.676	8.324.624	799.511	15.806
2011	58.986.867	8.103.014	788.522	15.400
2010	59.522.471	9.720.625	844.550	53.447
2009	62.844.056	9.133.439	855,927	53.762
2005	59.581.768	11.031.812	886.033	53.598

Forest & Climate

The WUR focuses on reinforcing the natural landscape of the campus. Therefore, it has incorporated a biodiversity policy. In the period of 2018-2020 several demolition projects were planned. However, flora and fauna were taken into account by conducting a quick scan to mitigate any harmful effects. Another goal of the university is extensive maintenance of ecological phenomena and a minimum amount of fertilization. Biodiversity has become a standard criterion when assessing possibilities for renovation and new constructions. The university has also put efforts in stimulating biodiversity at the campus. In 2018, the university cut down seven trees, but compensated with six new trees. The balance of the compensation of trees thereby came down to 215 trees relative to 2010. It can be concluded that the WUR adopts an active approach towards addressing the cultivation of the campus.

Waste

The WUR has formulated a waste policy with *key performance indicators* (KPIs) that monitor the performance of suppliers and the communication with stakeholders about waste performances. This allows the university to carefully monitor waste streams from top to bottom. Natural residues are composted as much as possible internally. In 2018, a *material flow analysis* (MFA) was developed by students which depicts all sorts of material and resource flows. In the coming years, the university will continue developing waste policies and improving their execution. In table 9, an overview is provided with the amounts of waste in kilograms between 2013-2018. The WUR has realized a 63% waste separation in 2018 relative to 58% in 2017. Compared to the Radboud University, the WUR has higher amounts of waste in kilograms, but it should be taken into account that this is about the university department and the research department combined.

Table 9. Amount of waste in kilograms at the WUR between 2013-2018. Retrieved from Milieujaarverslag 2018, Wageningen University & Research.

	2018	2017	2016	2015	2014	2013
Bedrijfsafval	1.393.294	1.538.927	1.548.002	1.291.922	1.361.400	1.261.475
Papierafval	300.983	289.117	296.788	295.184	329.447	369.777
Gevaarlijk afval	492.186	362.670	352.125	309.964	305.932	241.103
Totaal WUR (excl. derden)	2.186.463	2.190.716	2.196.915	1.897.070	1.996.779	1.872.355
Afval per medewerker	426	448	447	383	394	364
Afval per student	182	183	195	183	209	212
Afval per mdw+student	128	130	136	123	136	134

Carbon emission

The WUR is planning to reduce the carbon emissions by purchasing 100% sustainable wind energy, reducing gas use by renovating and new constructions, and by expanding the thermal energy storage on the campus. In order to monitor the actual results of carbon emissions, the university has developed an annual CO₂ footprint, which provides insight in the impact on the climate and helps to indicate targets and possible measures. The most frequently used standard for drawing up the CO₂ footprint is the Greenhouse Gas (GHG) Protocol, which indicates what is obligatory to report, and what is optional. It is an internationally acknowledged protocol for a stepwise calculated CO₂ footprint. The GHG Protocol distinguishes between three scopes: direct emissions, indirect emissions, and other (indirect) emissions. In table 10, the CO₂ emissions in 2010 and between 2015-2018 are shown. The table provides a clear presentation of how the emissions are built up. A systematic reduction can be seen, except in 2018 relative to 2017. The emissions increased with 5%, which can be attributed to an increase in the amount of kilometers traveled by plane and commuter traffic. In figure 8, the CO₂ footprint and compensation between 2010 and 2018 have been provided. The emission was reduced by 49%, which can be attributed to the transition towards green electricity. The data in the CO₂ footprint of the WUR are checked for completeness by the independent consultant RoyalHaskoningDHV. The figures indicate that the WUR has realized more CO₂ compensation over the last two years, which is also the goal for the years to come.

Table 10. CO₂ emissions at the WUR per scope (in tons of CO₂) in 2010 and between 2015-2018. Retrieved from CO₂-emissie inventaris, Wageningen University & Research.

Scope	Onderdeel	CO ₂ -eq (in ton) 2018	CO ₂ -eq (in ton) 2017	CO ₂ -eq (in ton) 2016	CO ₂ -eq (in ton) 2015	CO ₂ -eq (in ton) 2010 ¹⁷
Scope 1	Gebouwen - aardgas	11.250	11.430	13.105	13.528	20.325
	Gebouwen - koudemiddelen	207	132	403	241	527
	Eigen wagenpark	113	130	61	55	513
	Leasevoertuigen	302	320	373	417	511
	Huurauto's	45	64	80	74	84
	Gehuurd touringcars	153	150	136	136	114
	Landbouwvoertuigen	1.115	926	929	913	817
	Landbouwgronden	5.100	5.735	5.285	5.285	6.355
	Veestapel	3.635	3.369	3.423	3.963	4.649
	Totaal scope 1	21.921	22.256	23.795	24.612	33.894
Scope 2	Gebouwen - elektriciteit	0	0	0	0	33.058
	Voertuigen - elektriciteit	10	3	2	<0,1	0
	Zakelijke kms privéauto's	946	898	963	981	1.354
	Zakelijke vliegkms	7.977	7.473	8.887	8.099	8.156
	Dienstreizen OV	32	32	47	137	147
	Totaal scope 2	8.966	8.405	9.899	9.217	42.714
Scope 3	Afvalverwerking	2.109	1.790	1.767	1.518	1.317
	Vliegkms studenten en cursisten	2.037	1.597	2.021	2.097	1.269
	Woon-werkverkeer	7.555	6.658	6.463	6.907	3.623
	Totaal scope 3	11.700	10.045	10.251	10.522	6.209
Totaal	42.587	40.706	43.945	44.351	82.818	

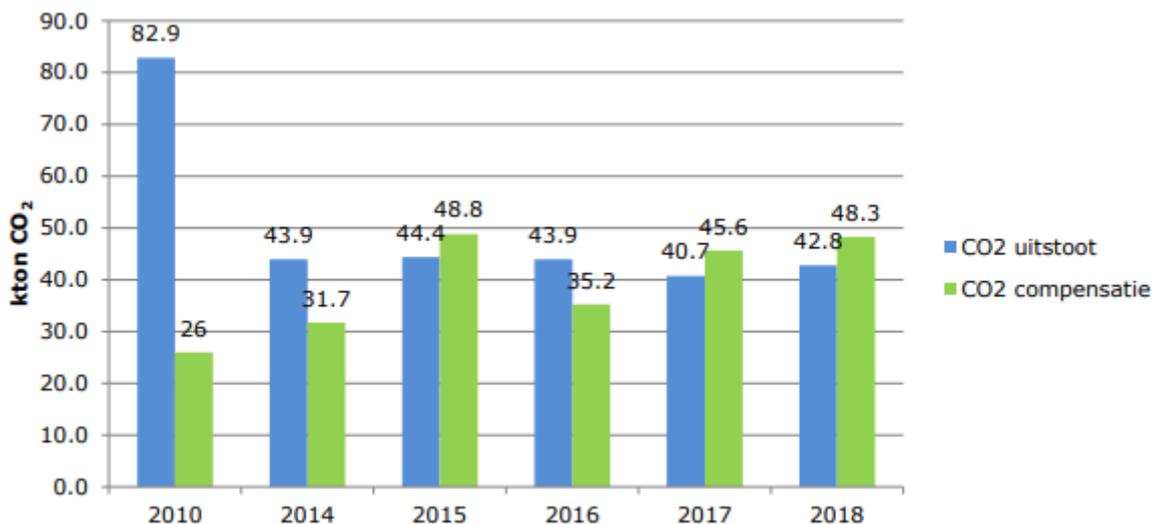


Figure 8. The CO₂ footprint and compensation at the WUR in 2010 and between 2014-2018. Retrieved from Milieujaarverslag 2018, Wageningen University & Research.

Population

The WUR comprises approximately 12.800 students (2019) and 2.640 FTE personnel (2018). There is no data available on population limits and population management.

Noise

The WUR continuously assesses what the impacts are of changes in sources of noise. These sources can arise from the construction of new buildings, maintenance, and alterations in research. These changes are checked against the background of environmental permits, and the development plan of the WUR. Every year, the WUR reports updates within the field of noise, and tests whether certain changes remain within the frames set. In 2018, 15 noise reduction measures were taken in order to meet the requirements.

Land use

In the coming years, the WUR will collaborate with Unilever and PlusUltra to realize sustainable buildings on the Business Strip at the campus. Moreover, a new parking deck under construction is provided with a green façade covering, and a woodland garden was created along the Bornsesteeg. Moreover, the wet nature garden that was constructed in 2017, is gradually taking shape. In 2020, buildings should meet the BENG requirements, which implies that maximums have been set for new buildings, so they become nearly energy neutral. The university uses GreenCalc+ as a method to measure to what extent buildings are sustainable. The target value is 215 and some buildings at the campus significantly meet the target value. Examples are the Orion building (480), the Forum building (360), and the Helix building (520).

4.1.4. To summarize

The WUR has an extensive database with information available on its sustainability efforts. It can be concluded that the university has set clear goals, and has adequately implemented these goals. The university provides a rich amount of data on future plans, and how these plans are going to be realized. Compared to the Radboud University, the WUR can be considered to be a few steps ahead in terms of sustainability efforts. This can be assigned to the generation of green energy and to the comprehensive approach that extends to small details. However, the influencing factors that shape a university could have a significant impact. This means that the WUR has certain characteristics that the Radboud University simply does not have. Nevertheless, the WUR is very ambitious in its sustainability efforts, which is also reflected in the outcomes of the ranking lists.

4.1.5. University of Groningen

Water

For 2020, the University of Groningen has set the target to reduce water consumption equal to or below the level that was realized in 2008. In 2015, this was $0,46\text{m}^3/\text{m}^2$ and the target for 2020 is $0,31\text{m}^3/\text{m}^2$ as can be seen in figure 9. Since 2014, the water consumption per student was stable as is shown in figure 10. The university is currently working on further improvements to achieve the goal for 2020. One area of focus are the new buildings, such as the Energy Academy which enabled a water reduction of 32% in 2018.

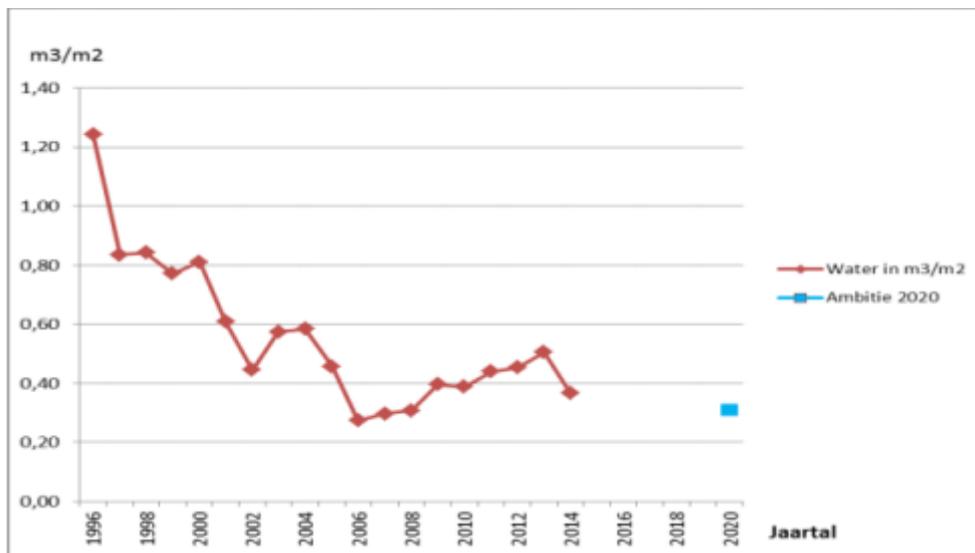


Figure 9. Water consumption at the University of Groningen.

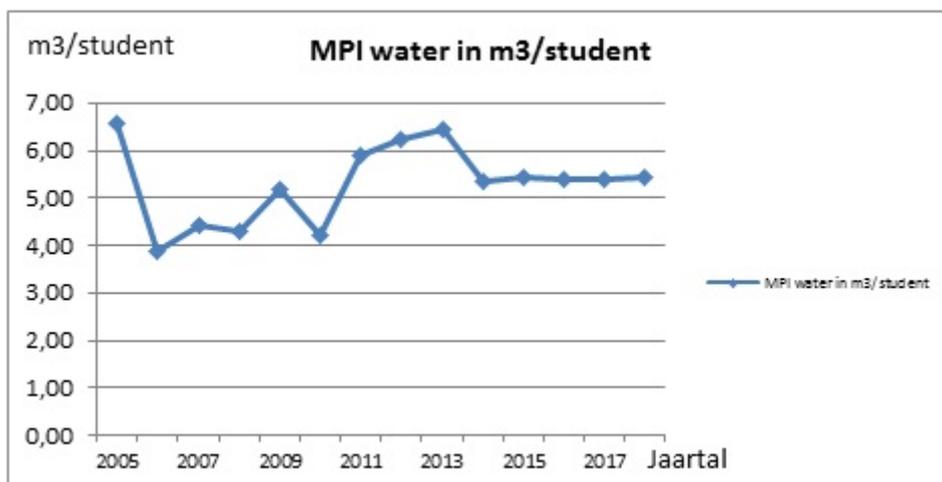


Figure 10. Water consumption in $\text{m}^3/\text{student}$ at the University of Groningen.

Electricity

The University of Groningen aims to achieve 25% energy yields from renewable resources, and a 30% energy-efficiency improvement in 2020 relative to 2005. Since 2013, the percentage of renewable energy resources adhered to 17%, which implies that there is still a considerable potential in this area. In order to achieve the goals, the university will take technical and behavioral measures. The university does compensate 100% of the purchased electricity with GVO (guarantee of origin) certificates, which indicate that the energy was produced sustainably. In figure 11, the amount of purchased energy per student and personnel in gigajoules (red line), and the percentage of renewable energy (blue line) are shown. In 2019, the university installed 2.250 solar panels with an output of 660 megawatt per year. The total output thereby comprises 1.290 megawatt, which corresponds with the amount of electricity consumed by 430 households. This showcases a positive trend, but in order to reach the renewable energy goal, the university still has to improve significantly.

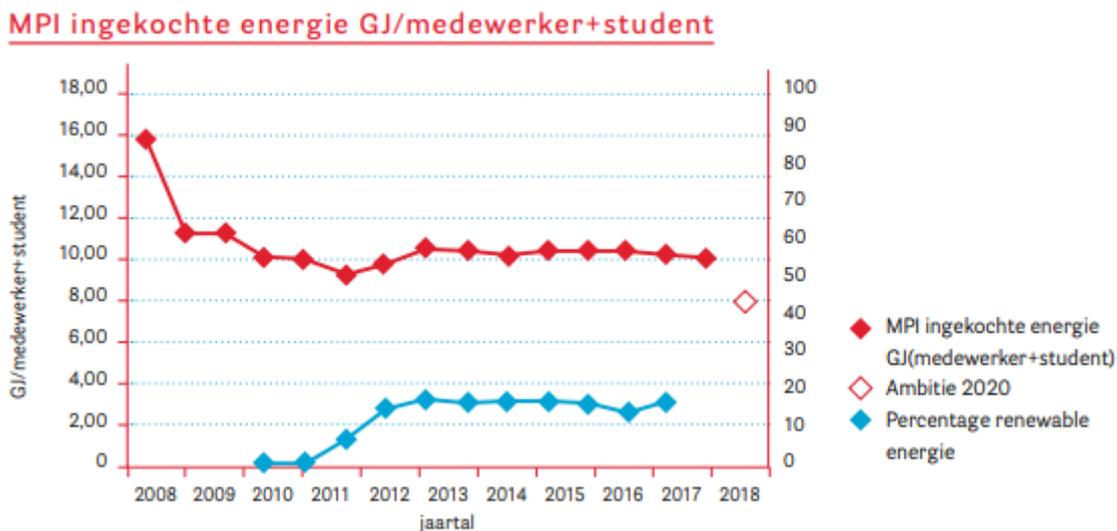


Figure 11. Purchased energy and percentage of renewable energy between 2008-2018 at the University of Groningen.

Gas

Similar to the other universities, the University of Groningen has adopted a thermal energy storage. The legal standard is that 20% of the total energy consumption should be generated by the thermal energy storage. The university aims at 25%, but in the current situation it is at 15%. The thermal energy storage in combination with a heat pump do reduce the total energy demand by 50%, but there should be additional measures in order to reach the goals.

Forest & Climate

The University of Groningen does not provide much information about implementations within the domain of forest and climate. However, it does aim to increase the amount of trees at the campus, for example.

Waste

The goal for the University of Groningen is to reduce waste in 2020 by 15% relative to 2005. Moreover, the university aims to separate at least 70% of non-hazardous waste, which as of this moment is at 53%. The ambition of the university is to reduce waste to a 27kg per student/personnel, which is currently 32kg per student/personnel. In 2018, the university started a trajectory with new contracts to better collect waste. The procurement department collaborates with the Green Office to explore the possibilities. In figure 12, the annual waste streams in kilograms per student and personnel are shown. Over the last few years, a slight increase can be recognized. Therefore, the goal has not been achieved, but the university will intensify its waste management in the coming years.

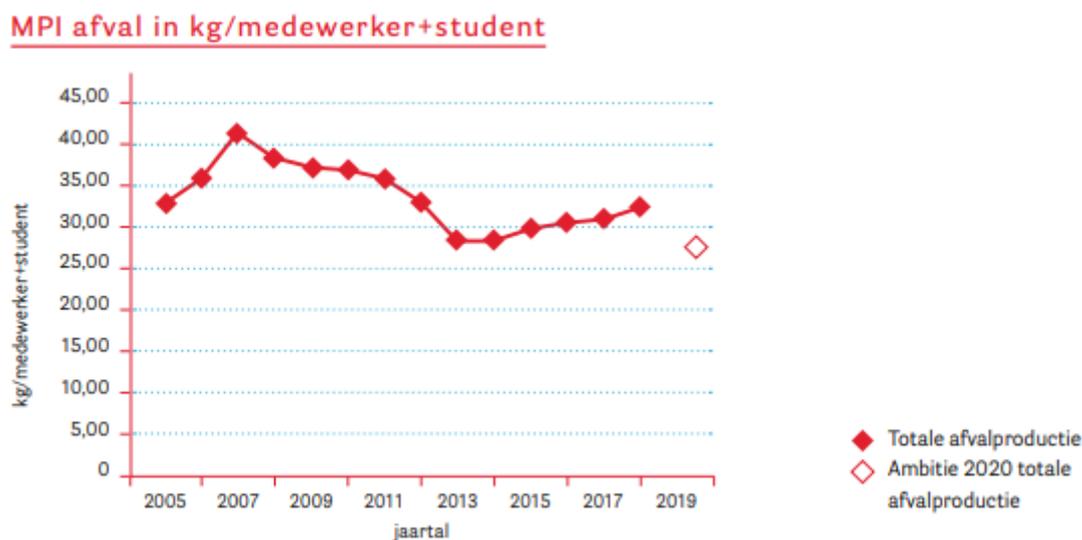


Figure 12. Waste in kilograms per student and personnel at the University of Groningen between 2005-2018.

Carbon emission

The University of Groningen has set the target to be CO₂ neutral in 2020. This was defined as: *at least a 30% energy-efficiency improvement in 2020 relative to 2005*. In order to reach this target, the university has introduced several initiatives such as the ‘campus bike’ in 2018,

which enables students and personnel to utilize them via an app. Moreover, the university has obliged traveling by train within a radius of 500 km from Utrecht, depending on the total travel time. In 2018, the CO₂ emission due to business trips on the total CO₂ footprint was 16%. The goal is to realize fully CO₂-compensated flights. In 2015, the total CO₂ production of the university comprised 69 kton, whereas in 2018, this was 34 kton which is a decrease of 51%. This decrease can be attributed to purchased electricity that was 100% compensated with GVO-certificates. Figure 13 gives an overview of the allocation of categories that comprise the total CO₂ emissions. It can be said that the university is effectively addressing carbon emissions and will continue to do so in the future.

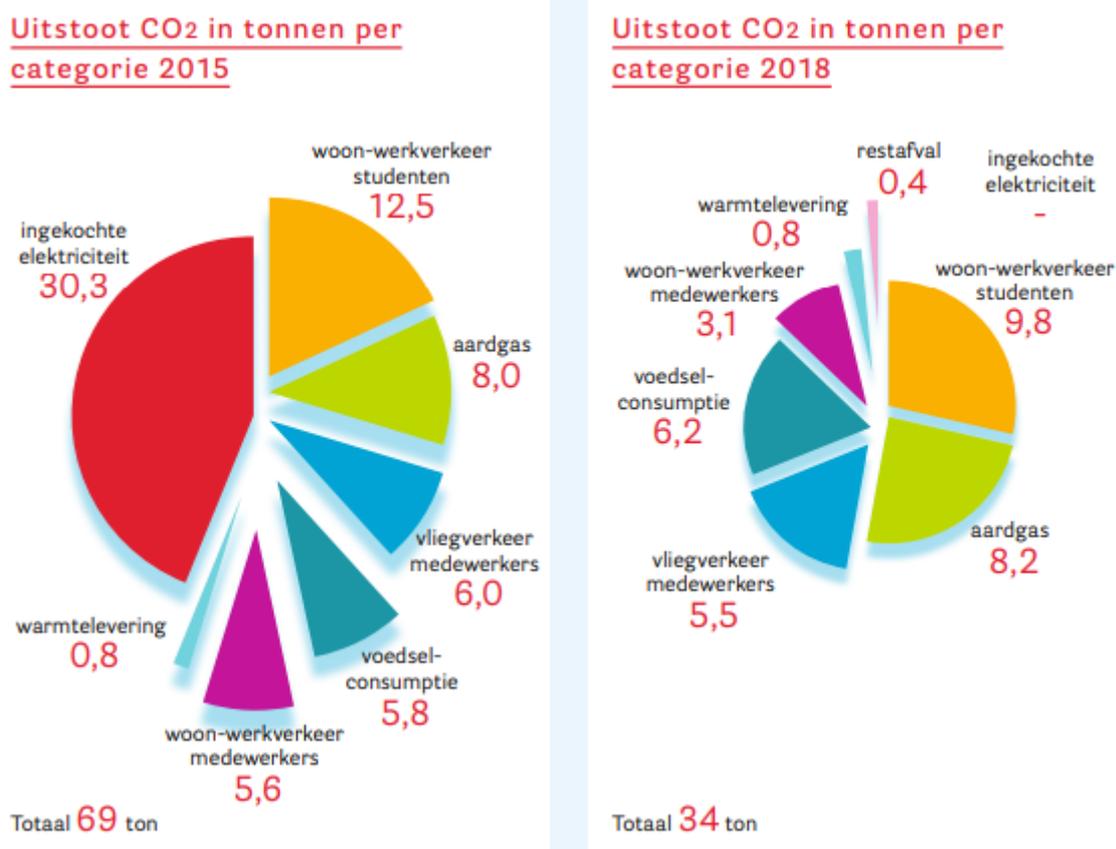


Figure 13. CO₂ emissions in tons per category in 2015 and 2018 at the University of Groningen.

Population

In 2018, the University of Groningen encompassed 31.515 students and 3.400 FTE scientific personnel. Both have shown an increase over the years. There is no data available on population limits and population management.

Noise

The university focuses especially on the reduction of noise during the construction of buildings. Several measures have been taken to limit nuisance in the area. Examples are using screw piles instead of concrete piles, heavy transport before 8 AM, no nuisance of radios, and monitoring noise as much as possible, a point of contact for students, etc.

Land use

The University of Groningen has put significant effort in building sustainably. When possible, the BREEAM certificate ‘excellent’ is the norm when a new building is designed ($\geq 70\%$ sustainable). An example of a sustainable building with an ‘excellent’ BREEAM certificate is the Energy Academy Europe. It is the most sustainable educational building of the Netherlands with an ‘outstanding’ BREEAM certificate ($\geq 85\%$ sustainable). It makes an efficient use of natural elements, such as earth, water, air, and sunlight. However, as was mentioned earlier, the university is going to focus on making the campus greener in the future.

4.1.6. To summarize

The University of Groningen has set clear sustainability goals for the future. As for the implementation, it did not realize all goals that have been set. Therefore, the implementation seems to be problematic, although there might be several reasons for this. This is something that should be clarified during the interviews with representatives from the university. After the interviews, a comparison between the three universities will be made.

4.2. Document analysis of ranking lists

4.2.1. SustainaBul

The SustainBul ranking list has been developed by ‘Studenten voor Morgen’ in 2012. A questionnaire is sent to universities, in which they are assessed on three categories: *education*, *research*, and *business operations*. The *integral approach* used to be the fourth category, but has been removed since 2020, because it is believed that sustainability should be an integral part of the policy. In each category, 110 points can be obtained, depending on the ambition level that has been assigned. These ambition levels vary between *minimal*, *average*, and *ambitious*. Moreover, the ranking list includes *best practices* in order to enable universities to share knowledge and learn from one another. This has been included to shift the focus from competitiveness towards a more collaborative approach. A maximum of three *best practices*

worth ten points each can be submitted. In total, the maximum score of the ranking list is 360 points. Within the categories, different weights have been adhered. This is shown in figure 14.

The ranking list makes use of different rounds. In the first round, students are asked to fill in the questionnaire, based on available information about the university. In the second round, the university has the time to improve the answers on questions, and to submit additional evidence. These answers are then checked by volunteers from the SustainaBul ranking list. Two examples of questions about sustainability in bachelors and sustainability in minors are shown in figure 15 to give an impression how these questions have been formulated, and what the possible answers are.



Inhoud

	% weging per categorie
Onderwijs (110 punten)	
1. Duurzaamheid in opleidingen	50%
2. Duurzaamheid in minoren	30%
3. Training en ondersteuning onderwijzend personeel	15%
4. Sustainable Development Goals	5%
Onderzoek (110 punten)	
5. Duurzaamheid in onderzoek en projecten	95%
6. Sustainable Development Goals	5%
Bedrijfsvoering (110 punten)	
7. Reductie emissies	10%
8. Reductie energieverbruik	10%
9. Waterverbruik	10%
10. Afvalbeleid	10%
11. Mobiliteit	10%
12. Groene energie	10%
13. Kantine	10%
14. PIANO-inkoopvoorwaarden	10%
15. Sociale duurzaamheid	15%
16. Sustainable Development Goals	5%
Best practices (30 bonuspunten)	
17. Best practice 1	10 punten
18. Best practice 2	10 punten
19. Best practice 3	10 punten

Figure 14. Categories and the weighed percentage of the SustainaBul ranking list 2019.

SustainaBul used to put the emphasis on competition between universities. It was assumed that universities would critically reflect on their policies and performance within the sustainability domain. However, this was criticized by universities, as the ranking list was perceived as a rat race. It was believed that the focus should be more on knowledge sharing among universities. Therefore, *best practices* have been added. Although these *best practices* have been included, the competitive aspect is partially maintained, as it is perceived to be valuable to benchmark universities. When they score lower on the ranking list, universities are encouraged to search for alternatives, change tactics, and learn from other universities.

A further criticism was that the questionnaire was quite time-consuming. This is why SustainaBul decided for 2020 that students fill in the first round, based on available annual reports and policy documents. The university then receives time to improve them or to add certain extra elements.

Vragenlijst SustainaBul 2020

Onderwijs

Duurzaamheid in opleidingen

1. Wordt duurzaamheid in het onderwijs geïntegreerd op elke faculteit en in alle opleidingen?

- Nee, dit gebeurt (nog) niet
- Dit is opgenomen in ons beleid
- Naar aanleiding van het beleid hebben we een strategie ontwikkeld voor de implementatie van het beleid en doelen vastgesteld
- De strategie is geïmplementeerd en wordt gemonitord
- Studenten en andere stakeholders worden betrokken bij het proces
- Deze beleids- en visiedocumenten zijn transparant in te zien, en online te vinden

Duurzaamheid in minoren

2. Worden er minors of keuzevakken (toegankelijk voor alle studenten van de instelling) aangeboden waarin duurzaamheid is geïntegreerd?

- Nee, dit gebeurt (nog) niet
- Dit is opgenomen in ons beleid
- Naar aanleiding van het beleid hebben we een strategie ontwikkeld voor de implementatie van het beleid en doelen vastgesteld
- De strategie is geïmplementeerd en wordt gemonitord
- Studenten en andere stakeholders worden betrokken bij het proces
- Deze beleids- en visiedocumenten zijn transparant in te zien, en online te vinden

Figure 15. Two questions on the questionnaire of the SustainaBul ranking list 2020.

4.2.2. Times Higher Education Impact Ranking

In this ranking, the focus is primarily on the 17 SDGs. Universities can submit data on as many SDGs as they are able to, as long as they at least include SDG 17 (Partnership for the Goals) and three other SDGs. Put differently, if they submit data on at least three SDGs and SDG 17, they are included in the overall ranking. SDG 17 accounts for 22% of the overall score, and the other SDGs carry a weight of 26%. Therefore, universities can be scored on different sets of SDGs, which is dependent on their specific focus.

The Impact Ranking takes *research* metrics into account, derived from data supplied by Elsevier. These metrics relate to papers that have been published and can be linked to certain SDGs. Moreover, *continuous* metrics are used, which measure contributions to impact that continuously change. An example is the number of graduates with a health-related degree. The size of the institutions are taken into account here. Questions about policies and initiatives are backed up by *evidence* that should be provided by universities. The Impact Ranking looks at examples that present best practices at the university.

The SDGs are perceived to provide a transnational language for political action and policy reform. It is believed that universities should play their part in these discussions. The Times Higher Education Impact Ranking aims to contribute in shaping this language, as well as critiquing it.

4.2.3. UI GreenMetric

The instruments used by the GreenMetric ranking encompass the three E's of *environment*, *economics*, and *equity*. The criteria used by the ranking list are generally considered to be of importance to universities that are concerned with sustainability. Therefore, basic information about the size and the zoning profile of the university are collected. The degree of green space has to be indicated, and another category focuses on electricity consumption as it is regarded to have a direct link to the carbon footprint. The next step is to gather data on *transportation* (18%), *water usage* (10%), *waste management* (18%), *setting & infrastructure* (15%), *energy & climate change* (21%), and *education & research* (18%). Universities are asked how they cope with these categories in their policies, actions, and communication. The scores are numerically processed and weighed to get to a final score. The percentages behind the categories indicate how much weight has been attached.

One notable thing about the ranking list is the fact that the Radboud University decided in 2018 to withdraw, whereas the WUR and the University of Groningen are still participating. A document from the Radboud University was looked into, in order to understand the reasoning behind withdrawing from the ranking list. After all, it is a ranking list that encourages universities to become more sustainable, so why would the Radboud University choose to withdraw? One reason is because according to the university, the focus of the ranking list is on static elements or elements that require a certain amount of time to change. Another reason for withdrawing from the ranking list is the fact that it does not provide any feedback to universities. As a result, there is no insight into why the actual results differ from the expected results.

Moreover, the university has indicated that ‘sustainability efforts’ is an ambiguous concept, which can be troublesome when filling in the ranking list. For example, what is meant by ‘sustainable research and education’? The Radboud University assumed a narrow definition that relates to ‘green’ sustainability, which might have had an influence on some scores turning out to be lower. Other universities adopted the SDGs when defining ‘sustainability efforts’, which is a broader definition. The Radboud University has concluded that the SDGs are helpful in clarifying the term ‘sustainability’. Another consideration as formulated by the Radboud University was the fact that the GreenMetric ranking does not incorporate food and air traffic (or business trips) as categories. It is assumed that these might have a significant influence on the carbon footprint of a university.

The last comment on the GreenMetric ranking is that it takes up a considerable amount of time for people to fill it in, but also for the supporting departments. The factors mentioned have ultimately led to the conclusion that the Radboud University would not participate in the ranking list anymore. However, the ranking list holds on to the latest score for three years. This implies that the score of the Radboud University will be included until 2021, which is an incentive for universities in general to continue participating in the ranking list.

4.2.4. Transparency benchmark

The central goal of the Transparency benchmark is to allow stakeholders to have a clear understanding of the activities within an organization. Consequently, a dialogue can be initiated on the performance of the organization. The benchmark does not seek to solely score organizations on their performance. It rather seeks to determine trends that reveal

improvements or declines. These can then be benchmarked to highlight *best practices* among organizations, in order to provide clear and transparent reporting.

The criteria that are used in the Transparency benchmark are based on a content framework and a quality framework. In total, 100 points can be scored, out of which 65 within the content framework, and 35 within the quality framework. The content framework is divided into three sub-categories: (1) *organization & chain*, (2) *strategy, management & governance*, and (3) *purposefulness & results*. Likewise, the quality framework is divided into three sub-categories: (1) *communication*, (2) *faithfulness*, and (3) *responsiveness*. These criteria are in line with international guidelines, such as the Global Reporting Initiative (GRI), the International Integrated Reporting Council (IIRC), the OECD, and the EU guideline.

The Transparency benchmark is built up of six steps. The first step is to conduct a self-assessment, in which organizations assess their own justifications towards the public. In the second step, the self-assessments are checked by a team of assessors and reviewers of the Transparency benchmark, in which a tentative score is determined. The third step gives organizations the opportunity to comment on the scores that were assigned. The fourth step is a final revision of the scores that organizations disagree with. A panel of 20 experts will look into these objections. The fifth step is the assessment of the scores by the panel of experts, based on 18 ‘panel criteria’. These are criteria on top of the normal criteria and take certain overlooked elements into account, which can alter the final score. The sixth step is the assessment by the ‘Kristal jury’, consisting of three people, which proclaims the winner of the top four.

When looking at the Transparency benchmark, certain elements have changed since previous years. There used to be 40 criteria, but these have been reduced to 20 with the aim to reduce the time pressure for organizations. The total score was reduced from 200 points to 100 points, and the focus has shifted from quality and layout, to quality and content. This was 50/50 and is now 35/65 respectively. Distinctions between sectors have been incorporated in the benchmark. For example, sector criteria have been added that can yield a maximum of five points, which allows for a better interpretation of the differences between sectors. Moreover, organizations can opt to choose ‘not applicable’ when answering certain questions, thereby missing out on a number of points. The benchmark now divides the acquired points by the maximum score, which provides a relative score instead of an absolute score. These

changes are likely to have consequences for the benchmark itself, which will be made more explicit through the interviews.

4.2.5. To summarize

The ranking lists vary in their focus on sustainability aspects. For example, SustainaBul focuses on sustainability in *research, education, and operations*, complemented with *best practices*. The THE Impact Ranking aims at the SDGs and similarly to the GreenMetric, it attempts to compare universities from all over the world, whereas the Transparency benchmark focuses on open and clear reporting. Although the ranking lists have their benefits in measuring the extent to which universities are sustainable, they certainly have their weaknesses as well. For example, the fact that universities ‘compete’ for a certain rank might have a discouraging effect. Moreover, certain elements are considered to be more important than others, which might not be agreed upon by all parties involved. However, the document analysis on the ranking lists has provided insight to some extent, but the reasoning behind it is expected to become clearer during the interviews. Here, the focus was on better understanding why the ranking lists are built up the way they are, and what the relation is between universities and ranking lists. This is explained in more detail in the next section.

4.3. Interviews with universities

This section elaborates on the findings of the semi-structured interviews. An overview of the persons that were interviewed is provided in table 11.

Table 11. Overview of the interviewees.

University	Concept	Function
Radboud University	Strategy	Program Officer Sustainability
	Communication	Marketing & Communication Specialist
	Implementation	Energy Policy Coordinator
Wageningen University & Research	Strategy	Policy Officer CSR
	Communication	Coordinator CSR & Sustainability
	Implementation	Energy Policy Coordinator
University of Groningen	Strategy	Sustainability Manager
	Communication	Communication Officer Green Office
	Implementation	Energy & Water Manager
SustainaBul	Ranking list	Chairman
GreenMetric	Ranking list	Vice-chairman
Transparency benchmark	Ranking list	Director Executive Master of Accountancy
THE Impact Ranking	Ranking list	Chief Data Officer

First, the results of the interviews with persons from the universities are presented. The strategy, implementation, communication, and the assessment of universities by ranking lists are discussed. After that, the perception of universities on the ranking lists is discussed. The conceptual model presented *influencing factors* and *learning processes* that will be focused on in this section. This will help in providing an answer to the sub-questions which will ultimately answer the research question.

4.3.1. Strategy

What strategies have been formulated by the universities in order to become sustainable in the future?

The Radboud University is currently working on a new sustainability program. It consists of four ambitions that are translated from the SDGs. These provide guidance for the university in formulating more concrete targets and activities. For example, the university will focus more on circularity in construction projects. When it comes to budgets for sustainability, activities can generally be carried out without any severe holdbacks.

“Everybody agrees that sustainability is such an important subject. It has also been stated explicitly in our strategy. So, I have not really experienced any obstructions due to a lack of money.” – Program Officer Sustainability, Radboud University

Moreover, the interviews revealed that there is no significant difference in the size of the teams within universities that have to fill in ranking lists. In fact, they are quite comparable, and all universities have a Green Office to further integrate sustainability efforts in terms of visibility and policies.

Sustainability used to be initiated by individuals, but nowadays the university has integrated it into the strategy which enables a more central approach to address sustainability. As a result, colleagues do not have to be convinced, they only need to be reminded of certain activities. This also led to the aim to further integrate sustainability in the curriculum.

“Currently, I am working on how to get every student come into contact with sustainability. I want to create a better overview per faculty on how we can successfully integrate sustainability into the curriculum, because I believe that the impact you make as a university is in research and education.” – Program Officer Sustainability, Radboud University

As for the WUR, sustainability has been the focus for a long time in research and education. This might have been an accelerator of developing new policies on sustainability in the future.

”At the beginning of 2008, we had a clear rule on sustainability in research, but sustainability in operations was still behind. When we started investigating several domains, it turned out

that we were already doing a lot in these areas. We kind of assumed it to be normal.” –
Policy Officer CSR, Wageningen University & Research

The WUR also adopts a different approach towards policy on sustainability. Most universities, including the Radboud University and the University of Groningen, are working on a central policy on sustainability, but the WUR has fragmented policies per area. However, although the information is available, sometimes it is difficult to find it.

“We have formulated a vision on circular economy, (...) which contains the targets for 2030 as well. You do have to search it in order to find it, so it just needs to be put on the internet properly. But that is something that I think is lacking. An overall policy, we do not have it.” –
Policy Officer CSR, Wageningen University & Research

This fragmentation has resulted in different teams, or science groups as the WUR calls it. For example, they have environmental science groups, animal science groups, etcetera. These all have their own board of directors and therefore a significant amount of autonomy. The budgets for sustainability are allocated to these science groups.

The University of Groningen has formulated a policy specifically aimed at addressing sustainability. It has given direction in where it wants to be, but also how it will get there.

“We have developed a roadmap in which we strive to become CO₂ neutral. The roadmap addresses multiple domains, such as energy, water, waste, mobility, and our co-workers. Currently, we are working on a new roadmap, which will become the new strategy for our university. We want to be able to measure it, so we are formulating everything SMART.” –
Sustainability Manager, University of Groningen

Moreover, the University of Groningen has aligned its policy with three pillars: *people*, *planet*, and *performance*. The university explicitly chose to focus on *performance* instead of *profit*, because the *raison d’être* of a university is not to make profit. In the case of Groningen, it is rather focused on integrating sustainability into curricula and encouraging colleagues and students to actively address sustainability. Within these three pillars, different teams have been set up. They are trying to assemble experts from across the university into these teams. The focus has shifted from setting goals to formulating how goals are going to be achieved in

as much detail as possible. For example, within the field of *performance*, education and research are the primary focus. In order to measure sustainability in this field, the university looks at how many papers can be related to sustainability, just to name an example.

In the future, the University of Groningen will focus on energy reduction, primarily in buildings as these take up most of the energy demand.

“As a university, we have only become larger with more students, more colleagues, and more surface with buildings. As a result, opening hours have been stretched (...) which comes down to about 20% of our energy demand. I think we must organize that in a better fashion.” – Sustainability Manager, University of Groningen

The University of Groningen has partially realized its goals. However, due to circumstances, not all plans were able to be executed. An example is the new Feringa building, which was planned to be finished in 2020. Another example is the attachment to geothermal energy, which could not proceed due to the issue of earthquakes in the region.

In short, all three universities have developed a clear strategy on sustainability, in which goals have been formulated, and how they should be achieved. The Radboud University is working on a sustainability program in which four ambitions have been derived from the SDGs. The WUR has a comprehensive strategy that extends to 2030. Moreover, the university has a strong focus on sustainability throughout the whole organization, in which nearly all small projects are part of the overarching strategy. The University of Groningen has developed a roadmap in which three pillars provide guidance for five years. The new roadmap will be completed this year.

4.3.2. Implementation

How have the universities implemented their strategies in the past and how are these going to be implemented in the future?

Over the years, the Radboud University has implemented numerous projects in order to lower the impact on the climate.

“One of the most important projects we have executed is the hybrid energy grid. This has enabled us to reduce our gas consumption by 50%. We do not have a wide range of possibilities to decrease our total electricity use, so we have also effectuated the purchase of 100% additional green energy.” – Energy Policy Coordinator, Radboud University

However, although the university has made some crucial steps in addressing sustainability, it is expected that there are some significant challenges in the future. Up until now, investment proposals were approved relatively straightforwardly. It might be the case, however, that this becomes more difficult in the future.

“We face the problem that the low-hanging fruit has been picked in which simple payback times were covered by the technical lifespan of the measures. We are moving to a situation in which this is not the case anymore. The question then becomes whether the executive board will continue to support the proposals.” – Energy Policy Coordinator, Radboud University

In 2008, the MJA3 was launched by the Dutch government. The goal was to improve energy-efficiency in a range of sectors by 30% between 2005 and 2020, and it provided a roadmap for further action to 2030. The WUR was very ambitious in their efforts, but it is also the only university with a wind farm, which enables the university to compensate its energy use.

“Relative to 2005, we already consume 50% less natural gas, and around 17% less electricity. If you add that up, (...) we have easily made the targets for 2020 and are getting close to the targets of 2030. We always try to be more ambitious than rules and legislations set by the government.” – Energy Policy Coordinator, Wageningen University & Research

However, after the MJA3, no new covenant has been designed by the Dutch government yet, even though the MJA3 can be considered to be successful. Universities have integrated sustainability into their research, educational trajectories, and their operations. The interviewees were asked about the reason behind not drawing up a new covenant.

“People have thought of drawing up a new covenant, but the government thinks it is too optional and non-binding. There have been sectors that also incorporated a covenant, but they seemed to be able to weasel out of it. However, a sectoral roadmap was developed for universities jointly, and we are working on an individual roadmap for universities, so that is

something we are doing, but there is no concertation structure connected to it". – Energy Policy Coordinator, Wageningen University & Research

"If there is not going to be a new covenant, you have to meet European standards. These are essentially the same, but a bit more complex, because there are three or four enactments you have to serve. That means that for every enactment, you have to report differently. (...) a new covenant is more practical." – Energy Policy Coordinator, University of Groningen.

"Legislation is for laggards. The VSNU [association of universities] submitted a sectoral roadmap with the statement that universities are doing a good job and will easily make their CO₂ reduction targets. (...) so there is little support, universities primarily have to look for themselves what they can do, develop programs, and monitor these programs." – Energy Policy Coordinator, Radboud University

For the University of Groningen, plans have been made to renovate buildings in order to make them significantly more sustainable. However, these plans failed to be carried out, due to a variety of reasons.

"As for the 2% annual reduction, we have achieved that target. However, the sustainability momentum was losing pace in terms of concrete actions. For example, Groningen was a frontrunner in applying geothermal energy to existing buildings. At one point, however, the mining-subsidence damage supervisor stopped us, as he did not want to take any risk. This meant that in an instant, 10% of our sustainability plans were crossed out. Fortunately, seven other projects were successfully carried out in the previous year." – Energy & Water Manager, University of Groningen

In short, a covenant could be helpful to specify sustainability targets for universities. However, the government is not supporting such a covenant as these are regarded to be non-binding. Moreover, universities are considered to be doing a good job of addressing sustainability. Often, plans are carried out that contribute to becoming more sustainable, although unexpected events can significantly impact the sustainability agenda. They are encouraged to come up with their own plan to further integrate sustainability into the organization. One might say that some binding agreement could enhance the cooperation between universities. However, universities themselves argue that they share knowledge in a

range of different ways. This means that these collaborative agreements have already been set up, which makes a covenant partially redundant as universities are already addressing sustainability with the aim of becoming climate-neutral in 2050, as stated in the Paris Agreement.

4.3.3. Communication

How do universities communicate their sustainability efforts internally and externally, and how do they interact with ranking lists?

The Radboud University is currently working on how to better communicate their sustainability efforts externally. A new policy program has recently been drawn up, which will be presented this year. Previous programs were put on the website, but the university will focus on doing more than that.

“If you want to convey a sustainability message, (...) you also have to involve students and colleagues in the plans so they become a part of it. (...) I also think that we could communicate more on how we are doing in the rankings. I am interested in what we could improve, so we can show that we are working on it.” – Marketing & Communication Specialist, Radboud University

The WUR focuses on enhancing a ‘CSR vibe’ that comes from students and colleagues, but is being expressed externally as well. The university aims to improve their website, so all information is accessible on a central level.

“We want to improve that vibe, that people say ‘wow I can really see the sustainability efforts at the university’. At our university, students and colleagues express sustainability, which helps us in continuing to improve that vibe.” – Coordinator CSR & Sustainability, Wageningen University & Research

The University of Groningen has also centrally integrated what used to be fragmented. For example, the website has been structured and is made more accessible. When it comes to communicating externally, the university aims to improve significantly.

“For example in projects in which sustainability is taken into account in a meaningful way, I want to have broad campaigns on that. Also in what ways the university invests in sustainability, what the Green Office is, what our roadmap looks like. That will be brought together in one single domain.” – Communication Officer Green Office, University of Groningen

In short, the universities have improved their internal communication on sustainability in the sense that awareness has been raised among students and personnel. The WUR gained momentum by the *vibe* that has emerged. Throughout the university, people are actively involved in addressing sustainability. This enables the university to communicate better externally. The Radboud University and the University of Groningen are focusing on raising more awareness in order to gain support for effectively communicating their sustainability efforts externally. Policy documents on sustainability have been drawn up, but now the priority for the universities is to have them centrally organized, for example by improving their websites.

4.3.4. To summarize

All three universities have developed a clear strategy on how to become more sustainable in the future. The WUR takes a leading role in terms of ambitions as it attempts to take extra steps. The Radboud University and the University of Groningen aim to comply with regulations and agreements, such as the MJA3, to name an example, in which an annual energy reduction of 2% is expected. The universities have formulated routes in order to get there. As for the implementation, the WUR and the Radboud University have implemented their plans successfully. The University of Groningen failed to achieve several goals that were set, but some can be attributed to unexpected setbacks, such as the issue of earthquakes. In terms of communication, the Radboud University and the University of Groningen attempt to gain ground as they have partially done over the past few years. An example is to assign personnel that specifically works on the communication of sustainability efforts. The aim is to make sustainability at the universities more visible and accessible to everyone. Especially students and personnel are going to be encouraged to actively participate in sustainability efforts. In contrast, the WUR already receives great input from students and personnel. This is the ‘vibe’ that has emerged over time. The aim of the WUR is to reinforce this vibe in order to make sustainability efforts even more transparent and present.

4.4. Interviews with ranking lists

4.4.1. Assessment

What do ranking lists focus on and in what way do these ranking lists resemble sustainability efforts at universities?

All four ranking lists have been evaluated by interviewing a representative. The general outcome is that ranking lists all have their strengths and weaknesses. As the representative of the THE Impact Ranking put it:

“It is the difficulty with any metric, because you’re taking something which is inherently complex and you bring it down to a single number. And any time you’re doing that, you’re making decisions, implicitly or explicitly, about what you choose to measure and what you choose not to measure. (...) none of them are right, they can only be less wrong, if that makes sense.” – Chief Data Officer, THE Impact Ranking

However, ranking lists ensure that universities are actively involved in addressing sustainability. When a university is participating in several ranking lists, it showcases that it is active on different fronts with regard to sustainability. The focus of the THE Impact Ranking was that all universities should be able to participate. The THE Impact Ranking consists of a team of twelve experts, but this is expanded during the data gathering stages. This is because different languages have to be looked into when assessing the submitted data of universities from across the world.

“This is a global ranking list, so a very obvious constraint is that we have to go at the speed of the slowest. We tried to make it easy to participate. We didn’t require universities to provide data for every single SDG. Obviously, we had to think carefully about the metrics we chose. It had to be generally applicable across the world.” – Chief Data Officer, THE Impact Ranking

Similarly, the UI GreenMetric has a global focus. It aims to involve universities in developed and developing countries.

“The goal is to provide simple assessment tools for universities to promote and monitor their efforts in creating a sustainable campus. We also aim to be a forum for sharing and learning best practices for universities’ sustainability policies, and to establish a national and regional network among participants in research and sustainability action.” – Vice-chairman, UI GreenMetric

This global focus certainly brings difficulties, but the GreenMetric regarded this as a challenge. The questionnaire was improved, but in a simple way, so that every university is able to participate. The organization of the GreenMetric consists of seven experts, with five staff members in the secretariat desk to operate daily activities. During the validation process, a board of experienced reviewers is asked to help in the assessment.

The SustainaBul ranking list has a focus on the 30 largest higher educational institutions in the Netherlands. Although the best practices have been incorporated in the ranking list, it still maintains the competitive aspect, in the sense that there is a first and a last university. The ranking list allows students from universities to fill in the first round, but consists of a group of 40 volunteers who assess the submitted data. They also provide each other with peer feedback on their assessments.

“What we noticed is that there were institutions that put great effort in filling in the ranking list, like Wageningen, they wrote whole paragraphs. They are likely to score higher, because you can present a lot of examples in which sustainability is addressed. However, our concern is not the little examples, but that sustainability is integrated in an overarching policy. So that it comes back in the curriculum.” – Chairman, SustainaBul

Despite the focus on an overarching policy, universities criticized the SustainaBul ranking list on the competitive focus in which specialized universities are likely to have an advantage. Still, the goal of the ranking list is to encourage universities to reduce their climate impact.

“A lot of institutions said that they didn’t want to participate anymore, as they did not score high on the ranking list anyway. Of course, in that case our ranking would not make an impact. We decided to focus on the 30 largest institutions as they were more likely to have a decent policy on sustainability than a small institution with less than 3000 students, for example.” – Chairman, SustainaBul

The Transparency benchmark is conducted by Ernst & Young, but the University of Groningen also has a panel that checks the assessment by the team of Ernst & Young. The reason this university is the independent institution that checks the assessment, is because the Director Executive Master of Accountancy used to work for Ernst & Young. However, when he started working for the University of Groningen, he urged the benchmark to let an independent institution review their assessment. This way, the reliability of the benchmark was enhanced. It takes about a month to assess the data submitted by organizations and to conduct a peer review. This is a careful process in which certain aspects are checked twice in order to ensure a reliable outcome.

“We follow a list of criteria with a corresponding explanation on how points should be allocated. So if you see this, half of the points should be awarded. If you see this, no points should be awarded. Ernst & Young organizes an assessment day in which we work in groups of three and look back if everyone comes to the same conclusion. This ensures that the assessment is done consistently.” – Director Executive Master of Accountancy, Transparency benchmark

As a result, it can be argued that ranking lists have carefully considered what is important, and are aware of the fact that there is room for improvement. However, it is not always possible to incorporate new elements, as they are already quite complex and there could be a chance of overburdening the universities filling them in. Although they do encourage universities to actively participate in the sustainability challenge, some universities question the importance of ranking lists within their specific context. This is something that became clear when asking universities on their perception of the ranking lists.

4.4.2. Universities’ perception of the ranking lists

One of the main reasons for universities to increasingly question the importance of ranking lists, is because of the amount of time it takes to fill them in.

“The ranking lists just take up a lot of time, which I think is immediately one of the biggest disadvantages. With the limited team we have... actually we do not even have a team, in sum we only have about 2 to 3 FTE available, which makes it a time-consuming effort.” – Program Officer Sustainability, Radboud University

“(…), they [GreenMetric] keep asking for evidence and that just takes a considerable amount of time. Providing the data is done relatively quickly, but the evidence takes time.” – Policy Officer CSR, Wageningen University & Research

Another point of discussion with regard to ranking lists is that some elements that are considered important, do not come back in the questions.

“We expected to score high on Climate Action [SDG 13 on THE Impact Ranking], (…) but it turned out that our performance on energy consumption was very poor. However, when you zoom in, no points were awarded to energy savings. That is peculiar, because when you look at the theory behind energy, saving energy is above green energy and above compensating energy, whereas the latter two are asked. So then it seems that we perform poorly, or averagely. We are definitely not top of the bill, but I think we do belong to the top 100 or top 200 at least.” – Program Officer Sustainability, Radboud University

“SustainaBul is very much about how much has been consumed and what is being done to lower the consumption. (…) but what step to take next is unclear, and that is not being overcome by the best practices somehow. (…) what I also miss is the social side of social responsibility [as the focus is on the environmental side]. – Policy Officer CSR, Wageningen University & Research

Ranking lists encourage universities to actively address sustainability, but the danger may be in filling in what ranking lists consider important, instead of looking at important elements within the given context of a university.

“When I look at SustainaBul for example, they only include information that is available on the website when assessing universities. I do not think that is good at all. We started putting things on the website only for SustainaBul (…), which makes it tricky, because then it becomes a goal on its own.” – Program Officer Sustainability, Radboud University

The competitive aspect in ranking lists is also one of the downsides according to some universities, although not all. The result is that universities are labeled on their performance, which can be motivating when a university ends up high on the ranking list, but can also be demotivating for universities that end up lower on the ranking list.

“As a sector, we should collaborate and not focus on who is the best, as no one is the best. (...), because everyone is good at one thing and less well at other things. However, there are universities that are very good in their information provision or in their communication, so focusing on best practices is more valuable in my opinion.” – Program Officer Sustainability, Radboud University

“It is very nice to perform well on ranking lists. It is valuable for the institution itself, for its image. But there is a tension between what you are doing, and what you are doing because a ranking thinks you should do it. Filling in ranking lists does not give you the feeling that you are actively addressing sustainability. You could also use that time to actually address sustainability.” – Policy Officer CSR, Wageningen University & Research

“I think we will continue to participate in the GreenMetric, as we have participated for a long period of time, and we are very positive about it. On the other hand, we do have doubts about the SustainaBul as we consistently send in a lot of information, but we get the idea that the reviewers often have difficulty in adequately assessing this information. This is why we might withdraw from the ranking list.” – Sustainability Manager, University of Groningen

The interviews revealed that specialized universities do indeed possess an advantage over classical universities in terms of scoring higher on ranking lists. However, the WUR would partially agree as it argues that a university has to perform well in all areas to become first. In the case of SustainaBul that would be in *education, research, and operations*. The first two are indeed fundamentally geared towards sustainability within a specialized university such as the WUR. However, according to the university, *operations* do not adhere to the fact that you are a technical or a non-technical university, although this assumption would be considered debatable by other universities. Nevertheless, the university has scored high in numerous ranking lists for a solid period of time.

“At our university, rankings are considered to be very important. I do get tired of it sometimes. It can become boring to be first on a ranking for fifteen years in a row. It would be great if other universities would take over. On the other hand, when we do score lower, people immediately start asking if we are not sustainable anymore. That is simply not the case.” - Policy Officer CSR, Wageningen University & Research

When looking at the Transparency benchmark, universities seem to be understanding of the idea behind it and what the added value of the benchmark is. However, it is sometimes regarded as quite technical and comprehensive.

“It is quite difficult to fill it in. The formulation of questions is quite complex and abstract. (...) a number of people are involved, also from the control department and they are used to such things, but sometimes they also get stuck in the formulation. (...) however, our value chain, or how we make an impact is the focus of the Transparency benchmark, which I think is a good thing, because integrated reporting on how we make an impact is something where we need to improve. I am currently working on that with our concern controller.” – Program Officer Sustainability, Radboud University

The WUR hires an external party to help reformulating the questions and accurately filling in the Transparency benchmark. This could be helpful to the other two universities as well, as it leaves less room for interpretation.

Despite the disadvantages, there are some fundamental reasons why universities agree on participating in the ranking lists. All three universities recognize the value of ranking lists, in the sense that they enable universities to learn from one another.

“The reason that we participate in the SustainaBul ranking lists, for example, is because we hope to learn from the best practices of other universities. In my opinion, that is a very important element.” – Program Officer Sustainability, Radboud University

“I am happy they are there, because they ensure some kind of incentive for universities. This is exactly the reason that universities should continue to participate. For example, SustainaBul is developed by students, and the awareness raised on their side in the long run is of great value.” – Energy & Water Manager, University of Groningen

4.4.3. To summarize

In this section, the interviews have been analyzed in order to provide an answer to the sub-questions that have been formulated. In the conceptual model, the *influencing factors* and the *learning process* were expected to make a university perform better or worse on a ranking list, depending on the context and how outcomes are integrated.

The *influencing factors* were the number of people or teams working on sustainability, the available budgets, the size of a university, to what extent they are specialized, the focus of sustainability in teaching and in research, and the internal pressure from students and staff. It turned out that there is no significant difference in the number of people working on sustainability, especially as sustainability has a wide outreach in universities. This means that many people are involved, directly and indirectly. When it comes to available budgets, all universities work with investment proposals that have to be approved by the board of directors. If this is the case, budgets are made available for the next period of time. It is not necessarily the case that one university has more budget available than the other, it just depends on the plans that are going to be executed. The size of a university does not have a significant impact on sustainability performance in the sense that the internal communication to get things done receives sufficient attention. Therefore, decisions around sustainability are made relatively easily. However, the extent to which a university is specialized does have an advantageous effect on their sustainability performance, as was expected. Within specialized universities, there is a fundamental focus on teaching and research. These are two important indicators for ranking lists to measure to what extent universities are sustainable. As became clear during the interviews, classical universities such as the Radboud University and the University of Groningen have less of a focus on sustainability in teaching and research, mostly because it is more difficult to integrate sustainability within certain study programs. A specialized university such as the WUR, however, tends to emphasize sustainability more, for example because of the internal pressure from personnel and students. They propagate sustainability which results in an organizational culture that inherently centers on sustainability, cultivating the sustainability efforts of the university.

The extent to which universities go through a *learning process* depends on whether they critically revise the outcomes, benchmark other universities, and learn from the best practices. As universities regard ranking lists as important, they revise the outcomes in order to improve on elements where they scored lower. Over time, they will keep track of what needs more attention and where they can improve. Moreover, benchmarking other universities certainly has an influence on the image of universities and the ambition to become better. This is something that can be seen in all universities, which emphasizes the importance of the learning aspect in ranking lists. In figure 16, the revised conceptual model is presented, highlighting the important elements that have an influence on the performance in ranking lists.

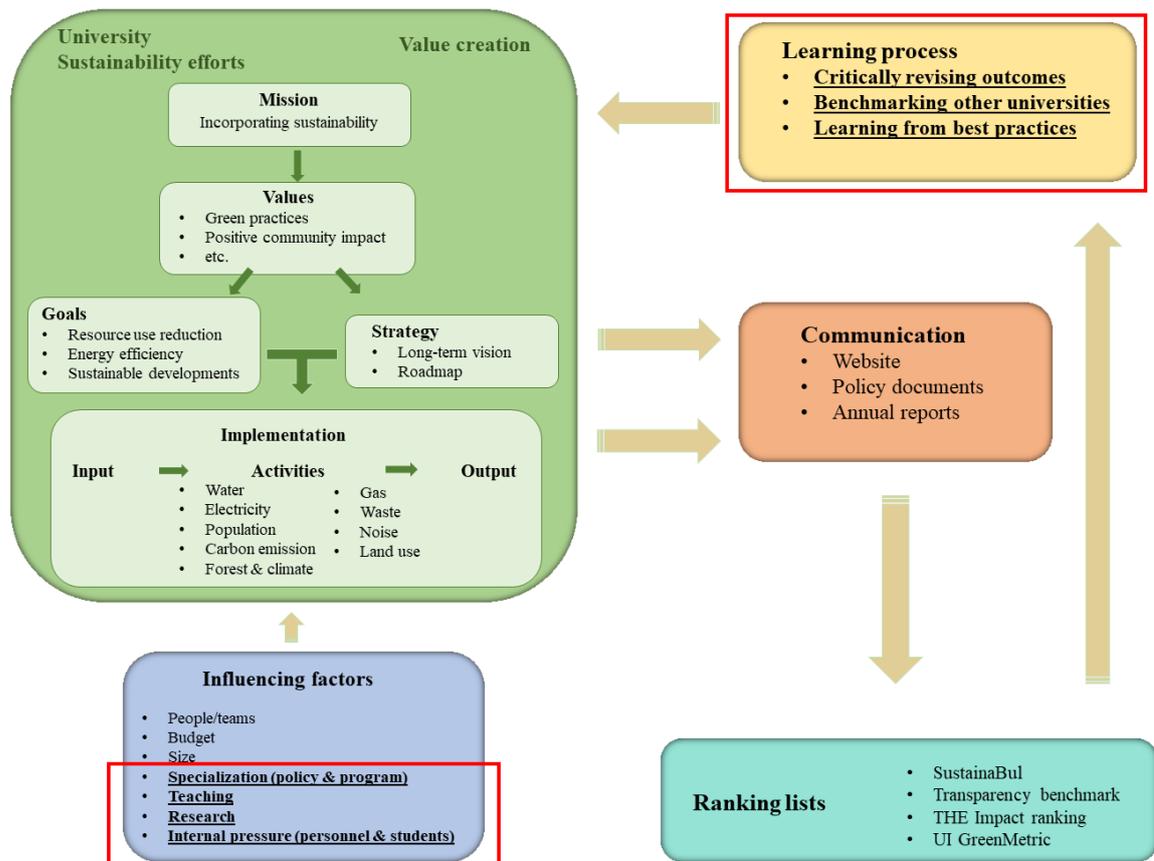


Figure 16. Revised conceptual model.

When looking at the revised conceptual model, the universities all developed a mission and values that have been translated into goals and a strategy. All three have integrated a vision on how to become sustainable in the future. For example, a roadmap was designed to give more direction in the sustainability process. Moving on to the implementation, sub-criteria such as water, electricity, carbon emission, waste, and gas are clearly elaborated upon. However, population, forest & climate, noise, and land use receive less attention in the external reporting. A reason for this could be the fact that it is more difficult to quantify these sub-criteria. Ranking lists such as the THE Impact Ranking and the GreenMetric aim to collect quantifiable data in order to arrive at a single number. The universities could use the sub-criteria provided in the conceptual model of this thesis to better specify their sustainability efforts. This could help to communicate the sustainability efforts more effectively towards ranking lists, especially the ones that have more of a qualitative focus such as the SustainaBul and the Transparency benchmark.

The *influencing factors* in bold in the bottom left box have shown to have an impact on the sustainability efforts of a university. Likewise, ranking lists have shown to value these factors as well. This means that a university specialized in sustainability is most likely to have a comprehensive infrastructure which is also reflected in teaching and research activities. Therefore, a common understanding emerges which also reinforces the internal pressure by students and personnel. The organizational culture is extensively aimed at sustainability, and it can be understood from the interviews that this gives these universities an advantage in the rankings. Whenever universities are not suitable to incorporate all *influencing factors*, such as classical universities, the focus can still be shifted to improving on the sub-criteria within the implementation, and the communication within and outside of the university.

As is depicted in the top right box, all universities have shown to undergo *learning processes* when participating in ranking lists, regardless of the fact whether they scored high or low. A university that scores relatively low will use the outcomes of ranking lists as input to improve its sustainability efforts. A university that scores relatively high perceives the outcomes of ranking lists as an incentive to remain ambitious in the future. Therefore, as can be understood from the interviews, ranking lists provide value in the sense that universities take sustainability more seriously, and actively commit to it. Therefore, universities should participate in ranking lists as much as possible, with the aim to learn from the outcomes in order to improve in the future.

4.5. A comparison between the universities

Radboud University

The document analysis and the interviews have revealed that the Radboud University has a clear strategy on sustainability. This is something that has gained significant attention over the past years. A vision has been formulated and this has been translated into clear goals, which has enabled the implementation phase to be carried out quite successfully. The university showcases a positive trend and is eager to maintain these efforts. However, the university still scores relatively low on ranking lists.

One reason is the fact that this classical university fails to fully incorporate sustainability in all teaching programs and research fields. As became clear, this is an influencing factor that can inhibit a university, not necessarily on reducing the use of resources, but rather on

communicating a sustainability image internally as well as externally. Moreover, there is support from students and personnel to some extent, but this often comprises people who are in contact with sustainability on a daily basis. There are study programs or research domains that simply cannot be linked to sustainability, or at least with difficulty. Ranking lists seem to place great value on an integral approach on sustainability throughout the whole organization. For a classical university with a wide range of study programs such as the Radboud University, it is unlikely to become top of the bill. However, this should not be regarded as a setback. The university should focus on *best practices* and how to effectively communicate these internally and externally.

Although universities closely collaborate in certain fields already, ranking lists function as an additional platform to share knowledge, enabling universities to become more sustainable. Therefore, participation in ranking lists should only be encouraged. The Radboud University did cease to participate in the GreenMetric, but as of this year, it participated in the THE Impact Ranking. It is expected that this helps in becoming a more sustainable university. However, this should be communicated to students and personnel, and to the external environment in order to succeed.

Wageningen University & Research

The WUR has been an exemplary case for other universities around the world. The document analysis and the interviews revealed that the WUR indeed puts significant effort in becoming sustainable. When looking at the organization, it has formulated a clear strategy with concrete goals, which have been implemented successfully. In fact, the university is more ambitious than most regulatory requirements. It became clear that a specialized university does indeed score higher on ranking lists, but in the case of the WUR this seems justifiable. Due to the fact that the university is specialized, teaching and research departments are significantly focused on sustainability, which creates a ‘vibe’ that consists of commonly shared values by students and personnel. This results in an internal pressure that emerged bottom-up, which effectively complements the strategies formulated by the directory board.

One notable characteristic of the WUR is the fact that it knows how to adequately fill in ranking lists. Being smart in filling in ranking lists seems to yield a higher score, which is the ‘marketing game’ that was critiqued by some universities. This communicational aspect that the Radboud University is lacking (internally and externally), is something that the WUR

excels at, which helps in scoring higher on ranking lists. Moreover, the WUR has a large surface area that is also used for a wind park. The other two universities simply do not have this capacity and therefore have to look for alternatives to become sustainable. In this case, the size of the university in terms of surface area does have an influence. However, in terms of students, personnel, and budgets it does not necessarily give universities an advantage in ranking lists.

University of Groningen

Just like the Radboud University, the University of Groningen is a classical university, offering a wide range of study programs. The university has developed a clear strategy in the form of a roadmap, which gives direction on what goals should be achieved, and when. As for the implementation, the university has shown a positive trend throughout the years, but has not been able to sustain this positive trend. Due to varying reasons, certain projects could not be completed, and overall, some figures show that there is room for improvement. It is peculiar that this university has not achieved all ambitions, but still scores relatively high on ranking lists. Except for the SustainaBul, in which the university dropped to the 19th place in 2020, it has done well in other rankings. It could be the case that the university has found an effective way to fill in the ranking lists, as the implementation occasionally falls short.

During the interviews, it was argued that the projects that were not finished this year would be finished next year, which would give an impulse to the placement on ranking lists. Still, the university does relatively well in the ranking lists. The strategy is clear-cut, but the implementation phase had some drawbacks. However, the university did restructure its website in which delivering information on sustainability became more important. In that sense, the university has learned what is expected to be communicated externally, and has shifted its attention to what ranking lists base their assessment on. When comparing the University of Groningen and the Radboud University, it can be argued that Groningen has developed an effective way of communicating sustainability externally. In the years to come, it wants to improve on this even more, while also aiming to improve the implementation phase. The Radboud University is able to effectively implement the goals that have been formulated, but seems to fall short on adequately communicating this externally.

5. Conclusion

The research question of this study was formulated as follows: “*How do the three universities address sustainability and what influence do ranking lists have on these efforts?*”

Over the years, universities have significantly changed their perception of sustainability resulting in the formulation of comprehensive sustainability strategies. These strategies have been translated into concrete steps to lower their impact on the environment. Therefore, universities have joined forces and share their knowledge on different levels. The targets set by the government in the MJA3 covenant have given the collaboration between universities direction until 2020. After that, no successor of the covenant has been developed, although universities would prefer to set new targets for the years to come. However, they hold on to the Paris Agreement as a long-term vision, which makes a covenant a welcome addition, but not a requirement. The government seems to be reluctant to launch another covenant, but it might be helpful, as it gives clear guidance in the sustainability challenge for the whole sector.

Universities are primarily focusing on getting their databases centrally organized. This is considered to be helpful in effectively communicating their sustainability efforts internally, as well as externally. It creates a clear depiction of what they are currently doing and where they want to be in the future. It is expected that this will be improved in the coming years, which will also have an influence on how they score on ranking lists. Especially for the classical universities, this focus on the communicational aspect might have a notable effect on the outcome of ranking lists. This is because these universities are not as sustainability-oriented as specialized universities, but they do create a more sustainable image by effective communication.

The WUR seems to excel at strategy formulation, the implementation, and successfully communicating its sustainability efforts. However, as a specialized university with a fundamental focus on sustainability within teaching programs and research fields, it has an advantage in conveying this sustainability message. The Radboud University has integrated a focus on sustainability within its activities, which resulted in a clear strategy that is implemented throughout the organization. In order to perform well on ranking lists, the university needs to focus more on effectively communicating its sustainability efforts internally as well as externally. The internal focus encourages internal pressure, one of the *influencing factors* that has shown to enable a university to improve on sustainability. The

external focus allows for a more visible sustainability image to other parties, such as ranking lists. It is shown that improved communication will help universities to score higher in ranking lists, and to get more recognition on sustainability at campuses. The WUR is an example of this, as it effectively communicates its sustainability efforts. Therefore, the Radboud University could learn from the WUR. The University of Groningen also has a clear strategy in the form of a roadmap, which gives involved parties a clear understanding of what it wants to achieve and when this is ought to be achieved. The university should improve slightly on realizing the targets that are set, as several targets have not been met. However, it successfully communicates its sustainability efforts internally and externally, which helps in scoring high on ranking lists. Still, both the Radboud University and the University of Groningen perform relatively poorly on the SustainaBul ranking list, but this is due to the fact that this ranking list greatly values sustainability in teaching and research, which is not the focus of classical universities.

The second part of the research question is about the influence of ranking lists on universities' sustainability efforts. Despite their differences, ranking lists can be said to adequately address sustainability issues. Universities seem to be in favor of participating in ranking lists, as they recognize the value they offer in the form of critical assessment, and through the learning outcomes. However, there are also critical notes with regard to ranking lists, as they are quite time-consuming, are altered relatively often, miss certain elements, and can result in universities putting greater effort in filling them in adequately instead of actually addressing sustainability. The creators of ranking lists are aware of the fact that there is no perfect assessment of sustainability efforts at universities, but they do believe that having a larger pool of participating universities ameliorates the common goal of the transition towards a sustainable future. Ranking lists are keen to receive feedback from universities in order to improve, but the continuous adding of new elements to cover a wider range of domains holds the danger of overburdening universities. On the other hand, when the number of criteria is drastically reduced, one might question the validity and reliability of the ranking list. As expected, this is a constraint that is inherently present in every ranking list.

This research revealed that although ranking lists all have their shortcomings, they do not present a distorted reflection of reality. This is a valuable insight, as it was expected that the discrepancy between what ranking lists measure and what universities actually do would be significant. The ranking lists themselves focus on certain areas, and universities should

adequately communicate what they currently do within these areas, supported by evidence. Scoring high on ranking lists seems to be a combination of a clear-cut strategy, effective implementation, and a comprehensive communicational effort, in which universities have to be clever. This is also affected by *influencing factors* that give some universities a relative advantage over others.

The final goal of this research was to provide a recommendation for the Radboud University. First of all, ranking lists should be regarded as a motivation to continue improving on sustainability, in which learning from other universities is prioritized over scoring higher. Therefore, the university should participate in as many ranking lists as possible. It must be stressed that a low score on the ranking lists is relative. Most universities are already effectively addressing sustainability, which makes a lower score not necessarily substandard. Moreover, the focus of the Radboud University should be on improving on its internal and external communication, because this will raise awareness on the sustainability ambitions. Steps have been taken in this process by appointing a sustainability manager, and a marketing and communication specialist. The university can improve on bringing together sustainability ambitions, and what has been achieved so far. This makes the sustainability efforts more tacit and explicit, which helps in effectively communicating sustainability efforts to students and personnel, but also to ranking lists. Another recommendation for the university is to continue achieving the annual sustainability targets, but with a greater focus on developing new best practices. For example, the WUR is going to focus on behavioral change of students and personnel. This is something that can be valuable to the Radboud University as well. Lastly, the Radboud University should continue to lobby for more support from the government, for example by instigating a new covenant. This should be done in close collaboration with other universities, as it is expected that they will all benefit from it.

6. Discussion & limitations

In general, universities were in favor of participating in ranking lists, but had some critical notes towards specific ranking lists. A notable remark is the fact that universities were more critical on ranking lists in which they scored low, while there were barely any negative comments on ranking lists in which a university scored high. Scoring low should be regarded as an incentive to improve sustainability efforts. However, when sustainability in teaching and research is the priority of a ranking list, classical universities almost automatically fall short. Instead of being demoralized by a low score, they should aim to become the most sustainable classical university, and not withdraw from a ranking list. The common goal is to make universities more sustainable, and ranking lists seem to provide a critical assessment that universities can learn from.

This research contributed to existing literature by combining strategy, implementation, communication, and the assessment of sustainability at universities. Ranking lists have been thoroughly elaborated upon in previous research, but the focus was mainly on how they were built up and what could be improved in order to better measure what they want to measure. In this research, universities' perception of ranking lists has been included, which emphasized the interaction between universities and ranking lists. Instead of mainly focusing on ranking lists, the aim was to look at sustainability efforts at universities, and how these efforts are recognized by ranking lists. Likewise, the ranking lists were looked into in order to see whether they provide a realistic reflection of reality. The discrepancy between what universities actually do and what ranking lists perceive, is something that has not been touched upon frequently. Therefore, more research should be done on how this relationship corresponds with other ranking lists and universities across the world.

In this research, the model developed by Li et al. (2018) as elaborated in section 2.3, provided guidance for assessing to what extent universities are sustainable. Of course, universities focus extensively on quantifiable sub-criteria, such as water, energy, waste, etcetera. However, the importance of the more qualitative sub-criteria, such as forest & climate, land use, and noise need to receive more attention. The model of Li et al. (2018) can help universities to become more sustainable as it takes valuable elements into account, which is why universities are advised to take a look at the model when developing new sustainability strategies. Likewise, the article of Basso et al. (2017) should receive more attention, as it

advocates more comprehensiveness in sustainability ranking lists. It proposes three different aspects of sustainability: *environmental*, *social*, and *the relation with the local community*. The framework that they present might be a valuable contribution in creating a larger number of sustainability ranking lists. As has become clear in this research, universities can learn from ranking lists which enhances sustainability efforts.

As for the limitations of this research, it was only possible to conduct an observation of the assessment procedure during a meeting of SustainaBul. There was no possibility of observing a meeting of the other ranking lists, because of the COVID-19 pandemic. This partially goes at the detriment of the validity of this research. However, the document analysis and the interviews provided a rich amount of data to overcome this limitation. Moreover, the meeting of SustainaBul that was attended, included only the first round of feedback. After that, a second round would be held in which members of the organization checked the submissions of the first round, and provided a new assessment. Therefore, the attended meeting only gave insight to some extent, but was not suitable for drawing valid conclusions.

Due to COVID-19, it was not possible to conduct face-to-face interviews. Instead, the interviews had to be conducted online. This had an influence on the interviews and therefore on the data collection, as the setting was different. Interviews aim to investigate something in a real life context, but using online tools reduces the validity to some extent. Moreover, during the interview with the representative of the GreenMetric from Indonesia, the quality of the internet connection was unacceptable, which is why it was decided to conduct a structured interview. The questions were sent via email to the representative, who filled them in and sent them back. Again, this had an influence on the validity and reliability of this research.

All interviews in this research were conducted in Dutch, except for the THE Impact Ranking and the GreenMetric (these were in English). However, the interviews had to be translated into English, which allowed room for a wrongful interpretation of what was meant. Although the researcher attempted to remain as close as possible to what the interviewee meant, it is possible that some phrases were interpreted differently than was intended.

Another limitation of this research is the fact that the latest documents of universities were developed in 2018. This means that the changes up until 2020 were not looked into in terms of policy documents and annual reports. Moreover, the roadmap that was developed by the

University of Groningen focused on the period 2015-2020. The same goes for the policy documents of the Radboud University, which addressed the period 2017-2020. In 2020, most universities will develop new documents on their plans for the next few years. Therefore, the new available data should be taken into account in the future when assessing universities on their strategy, implementation, and communication with respect to sustainability.

This research focused on what criteria were considered to be important by universities and by ranking lists. However, no research was done on whether these assumptions are actually grounded. For example, can energy reduction be considered to be more important than water reduction? The weight of criteria was not taken into account in this research. Instead, all criteria were assumed to be more or less equal. Suganthi (2018) proposes indicators that are ranked on their weight, but these are primarily aimed at sustainable development of a country. Lukman et al. (2010) have developed a methodology to determine the final ranks of universities. This might be helpful in future research as it does take into account the different weights of indicators. Perhaps a distinction can be made between for example whether energy savings should be awarded more points than reducing water consumption.

References

- Basso, A., Cardin, M., Giacometti, A., & Mio, C. (2017). Sustainability indicators for university ranking. *University Ca'Foscari of Venice, Dept. of Economics Research Paper Series No, 18*.
- Bekessy, S., Samson, K., & Clarkson, R. (2007). The failure of non-binding declarations to achieve university sustainability: a need for accountability. *International Journal of Sustainability in Higher Education*, 8(3), 301–316.
- Bizerril, M., Rosa, M. J., Carvalho, T., & Pedrosa, J. (2018). Sustainability in higher education: A review of contributions from Portuguese Speaking Countries. *Journal of Cleaner Production*, 171, 600-612.
- Bleijenbergh, I. (2015). *Kwalitatief onderzoek in organisaties*. Den Haag. Boom Lemma uitgevers.
- Boeije, H. (2005). *Analyseren in kwalitatief onderzoek: denken en doen*. Amsterdam: Boom onderwijs.
- Bookstein, F., Seidler, H., Fieder, M., & Winckler, G. (2010). Too much noise in the Times Higher Education rankings. *Scientometrics*, 85(1), 295-299.
- Brusca, I., Labrador, M., & Larran, M. (2018). The challenge of sustainability and integrated reporting at universities: A case study. *Journal of Cleaner Production*, 188, 347-354.
- Carlson, J. A. (2010). Avoiding traps in member checking. *Qualitative Report*, 15(5), 1102-1113.
- Corbin, J. & Strauss, A. (2008). *Basics of qualitative research*. London: Sage.
- David, A. (2001). Models implementation: A state of the art. *European Journal of Operational Research*, 134(3), 459-480.
- Del Mar Alonso-Almeida, M., Marimon, F., Casani, F., & Rodriguez-Pomeda, J. (2015). Diffusion of sustainability reporting in universities: current situation and future perspectives. *Journal of cleaner production*, 106, 144-154.
- Dijk, M. van, (September, 2015). Retrieved from <https://www.sinzer.org/blog/2018/7/24/the-crucial-difference-between-combined-and-integrated-reporting> on 10 March, 2020
- Doorewaard, H. (2010). Sensitizing concepts. In A.J. Mills, G. Durepos & E. Wiebe (eds.) *Encyclopedia of case study research*. London: Sage. P. 856-859.
- Dyer, G., & Dyer, M. (2017). Strategic leadership for sustainability by higher education: the American College & University Presidents' Climate Commitment. *Journal of Cleaner Production*, 140, 111-116.
- Filstead, W. J. (1979). Qualitative methods: A needed perspective in evaluation research. *Qualitative and quantitative methods in evaluation research*, 33-48.

- Fussler, C. (1996). *Driving eco innovation: A breakthrough discipline for innovation and sustainability*. Washington, DC: Pitman Publishing.
- Galpin, T., Whittington, J. L., & Bell, G. (2015). Is your sustainability strategy sustainable? Creating a culture of sustainability. *Corporate Governance*.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, 2(163-194), 105.
- GreenMetric. (n.d.). Retrieved from <http://greenmetric.ui.ac.id/overall-rankings-2019/> on 6 March, 2020
- Hazelkorn, E. (2011) *Rankings and the Reshaping of Higher Education. The Battle for World-Class Excellence* (Houndmills, Basingstoke, New York, Palgrave Macmillan).
- Helferty, A., & Clarke, A. (2009). Student-led campus climate change initiatives in Canada. *International Journal of Sustainability in Higher Education*, 10(3), 287–300.
- IIRC. (2013). *International IR Framework*. Retrieved from <http://integratedreporting.org/wp-content/uploads/2015/03/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf>. on 12 March, 2020
- Intergovernmental Panel on Climate Change. (2007). *Climate Change 2007: Synthesis report summary for policymakers. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland: Core Writing Team. In: R. Pachauri, A. Reisinger (Eds), IPCC pp. 1–104.
- Kehm, B. M. (2014). Global university rankings—Impacts and unintended side effects. *European Journal of Education*, 49(1), 102-112.
- Korzilius, H. (2000). *De kern van surveyonderzoek*. Assen: Van Gorcum.
- Li, Y., Gu, Y., & Liu, C. (2018). Prioritising performance indicators for sustainable construction and development of university campuses using an integrated assessment approach. *Journal of cleaner production*, 202, 959-968.
- Luehrman, T. A. (1998). Strategy as a portfolio of real options. *Harvard business review*, 76, 89-101.
- McDonagh, P. (1998). Towards a theory of sustainable communication in risk society: Relating issues of sustainability to marketing communications. *Journal of Marketing Management*, 14(6), 591-622.
- Merkel, J., & Litten, L. (2007). The sustainability challenge. In L. Litten & D. Terkla (Eds.), *Advancing Sustainability in Higher Education: New directions for institutional research*, no. 134 (pp. 7–26). San Francisco: Wiley Periodicals.
- Miles, M.B., & Huberman, A.M., (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd edn). Newbury Park, CA: Sage.

- Moore, J. (2005). Seven recommendations for creating sustainability education at the university level. *International Journal of Sustainability in Higher Education*, 6(4), 326–339.
- Muli, S. (2013). Sustainability rankings: Impacts on corporate sustainability.
- Nicolaides, A. (2006). The implementation of environmental management towards sustainable universities and education for sustainable development as an ethical imperative. *International Journal of Sustainability in Higher Education*, 7(4), 414–424.
- Onisto, L. (1999). The business of sustainability. *Ecological Economics*, 29, 37-43.
- Parson, E. A. (1995). "Integrated assessment and environmental policy making: in pursuit of usefulness." *Energy Policy* 23.4-5: 463-475.
- Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of counseling psychology*, 52 (2), 126
- Ragin, C. (1989). *The comparative method: Moving beyond qualitative and quantitative strategies*. Los Angeles: University of California Press.
- Ralph, M., & Stubbs, W. (2014). Integrating environmental sustainability into universities. *Higher Education*, 67(1), 71-90.
- Saunders, M.N., Lewis, P., & Thornhill, A. (1996). *Research Methods for Business Students*.
- Schirato, T., & Yell, S. M. (2000). *Communication and cultural literacy*. Allen & Unwin.
- Sharp, L. (2002). Green campuses: The road from little victories to systemic transformation. *International Journal of Sustainability in Higher Education*, 3(2), 128–145.
- Stebbins, R. (2001). *Exploratory research in the social sciences* (Qualitative research methods, v. 48). Thousand Oaks Calif.: SAGE. (2001).
- Suganthi, L. (2018). Multi expert and multi criteria evaluation of sectoral investments for sustainable development: An integrated fuzzy AHP, VIKOR/DEA methodology. *Sustainable cities and society*, 43, 144-156.
- SustainaBul 2019. (2019, May 27). Retrieved from <https://www.vanbeek.com/ontdek-van-beek/blijf-op-de-hoogte/nieuws/sustainabul-2019> on 7 March, 2020
- Swanborn, P.G. (2013). *Casestudies. Wat, wanneer en hoe?* Den Haag: Boom Lemma uitgevers.
- Tilbury, D., & Cooke, K. (2005). *A national review of environmental education and its contribution to sustainability in Australia: Frameworks for sustainability*. Canberra: Australian Government Department of the Environment and Heritage and Australian Research Institute in Education for Sustainability.

Villiers, de C., Venter, E. R., & Hsiao, P. C. K. (2017). Integrated reporting: background, measurement issues, approaches and an agenda for future research. *Accounting & Finance*, 57(4), 937-959.

Wright, T. (2002). Definitions and frameworks for environmental sustainability in higher education. *International Journal of Sustainability in Higher Education*, 3, 203-220.