Including students' views on collaboration of Wageningen University with the private sector

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Demonstration of ASEED Europe against collaboration with the private sector on the campus of WUR in June 2021. Retrieved from https://www.facebook.com/aseedeurope

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Abstract

At Wageningen University & Research (WUR), there has been increasing criticism from students on their collaborations with the private sector over the past few years. However, the perspectives of students at WUR on these collaborations have never been studied.

In this study, a Citizens' Jury was used to investigate the perspectives of WUR students, and to create a policy on this topic. The Citizens' Jury consisted of ten WUR students, who were an accurate representation of the student body. During five sessions, these students learnt about WUR's collaborations with the private sector from expert witnesses, articles, and discussions with each other. The Responsible Research and Innovation framework was used to assess WUR's behaviour with regard to collaborations with the private sector, and to help point out how WUR's behaviour can be improved.

The Citizens' Jury created an advice report in which they give advice on four topics: transparency on collaborations, reflexivity of WUR, scientific integrity and societal responsibility. On these topics, six recommendations were formulated. The main points in this advice were that WUR should be more transparent on their collaborations and should listen more actively to critical voices.

Under these conditions, the student body believes that collaborations between WUR and the private sector can be valuable and can help WUR towards achieving its goals.

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Appendices can be requested by sending an email to aniekdewinter@gmail.com.

1. Introduction

According to the Cambridge Academic Content Dictionary (2017), science is defined as:

> *"the systematic study of the structure and behaviour of the natural and physical world, or knowledge obtained about the world by watching it carefully and experimenting."*

New knowledge in science is advanced by research from scientists, who can be employed by universities, companies or (public) knowledge institutions.

The role of science is not fixed, and views on its role have changed considerably throughout history. Over the past few decades, 'science for society' has received increasing attention (UNESCO, no date; Owen, Macnaghten and Stilgoe, 2012). In their article, Owen, Macnaghten and Stilgoe (2012) describe how Responsible Research and Innovation (RRI) can contribute to scientific research that benefits society and can help deal with dilemmas that may arise alongside emerging technologies and innovations. The role of science can also differ per country, as national policies and funding regulations can play an important role in the shape of the knowledge infrastructure.

1.1 Scientific research in the Netherlands

In the Netherlands, scientific research takes place in companies (67% of total R&D expenses in the Netherlands), universities (28%) and public research institutions (5%) (Figure 1) (Rathenau Institute, 2021). This is commonly regarded to be a good distribution for a successful knowledge infrastructure, as the Netherlands is viewed a major power in the world of science. There is a substantial output of scientific articles, a high scientific citation rate and relatively high quality education as can be seen in international rankings (Van Dijck and Saarloos, 2017). Despite it being a small country, such indicators convey the impression that it can compete very well with larger nations and translate basic and applied science into welfare. In 2019, the Netherlands was ranked fourth in the Global Competitiveness Index in 2019, which "assesses the ability of countries to provide high levels of prosperity to their citizens" (World Economic Forum, 2019).

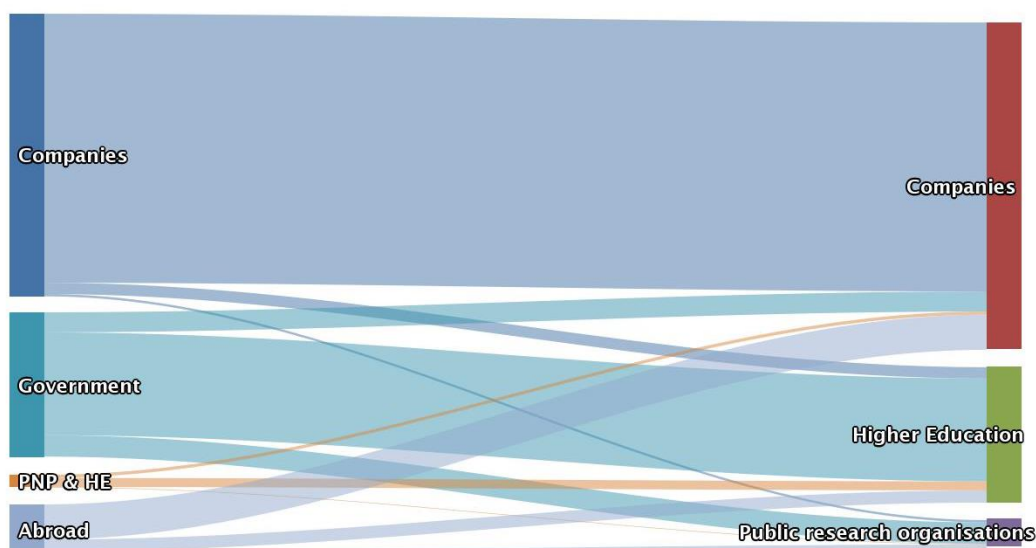*Figure 1: R&D in the Netherlands, from financier to performing sector, 2019. The financing from private non-profit organisations (PNP) and higher education (HE) have been merged. Retrieved from Rathenau Institute (2021).*

According to the Dutch Higher education and Research Act (*Wet op het hoger onderwijs en wetenschappelijk onderzoek*, 2022) one of the main roles of Dutch universities is to transfer

knowledge for the benefit of society. In practice, we see that in the Netherlands this is, amongst others, achieved by collaboration with the private sector. When the Netherlands was ranked fourth in the Global Competitiveness Index of the World Economic Forum in 2017, the closeness of links between universities and the private sector was listed as one of the reasons for this high position (World Economic Forum, 2017).

The Dutch government stimulates the closeness between the so-called 'golden triangle' or 'triple helix': the universities, the industry, and the government (Figure 2). An example of how this is done is the Top Sectors policy (Ministry of Economic Affairs, 2016).
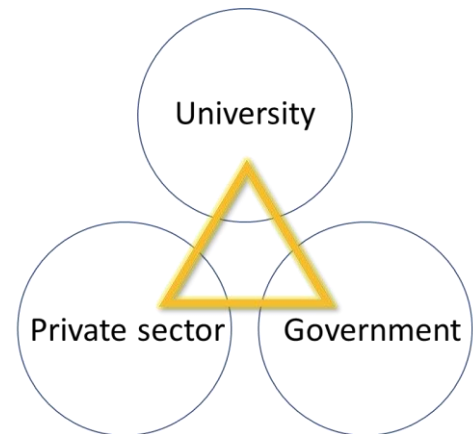

Figure 2: The 'golden triangle' or 'triple helix'.

1.1.1   Research funding and its consequences

The Top Sectors policy was created in 2011, shortly after the economic crisis, to stimulate the knowledge economy in the Netherlands. This policy was created to encourage closeness between actors in the golden triangle through collaboration on innovations to strengthen the Dutch economy and devise solutions for the challenges of the future (Ministry of Economic Affairs, 2016). This is done in nine sectors, the Top Sectors, in which the Netherlands is a global leader. When this policy was introduced, basic scientific research received proportionately less funding from the government (ScienceGuide, 2016). By contrast, public-private partnerships were prioritised in the Top Sectors policy, and the private sector was incentivised to invest more in scientific research (ScienceGuide, 2017).

In the Netherlands, a little over half of research and development (R&D) is financed by companies, which is significantly higher than the government investments which stands at approximately one third, as can be seen in Figure 1. The comparatively low level of government investments in R&D is a matter of concern to many stakeholders in the Dutch knowledge system (ScienceGuide, 2017; van der Molen *et al.*, 2018), leading a number of science policy organisations to recommend that government investments in R&D should be increased. This would not only increase the quality of the Dutch knowledge system, it is claimed, but also the Dutch economy, as indicated in research by RaboResearch, the knowledge centre of the Dutch bank Rabobank (Erken, van Es and van Harn, 2022).

The relatively large amount of private sector research funding can lead to shifts in what kinds of knowledge gets to be funded, with a priority towards knowledge that can generate short-term economic benefit, and where scientific knowledge is converted into commodified market value, shifting the focus away from fundamental research (de Knegt, 2020). In response to this effect, many are stressing that scientific research should be prioritised for the common good, and on societal and global challenges, rather than for commercial purposes (Peters, 2019; de Knegt, 2020). Moreover, the norms on which the Netherlands Code of Conduct for Research Integrity are based can be conflicting with the privatisation of scientific knowledge (de Knegt, 2020). Further risks of prioritising market-oriented research are that students at universities are looked upon primarily as consumers of education and human capital for the labour market, rather than active participants in higher education institutions (European Students Union, 2005). The risks of commodification of science as a result of the close links between universities and the private sector are also receiving increasing attention at Wageningen University & Research.

1.2 The Wageningen context

Wageningen University & Research (WUR) is a Dutch university and research organisation whose mission is to *explore the potential of nature to improve the quality of life*. WUR's core goal is to help in solving global challenges like malnutrition, overpopulation and climate change (Wageningen University & Research, 2019). With a history that includes its role as an applied institute, WUR collaborates with companies, alongside other actors, to help achieve this goal.

These collaborations with the private sector have the potential to be beneficial for both the companies and WUR. In line with national policies, such partnerships are constructed broadly as a win-win situation, in which companies develop better access to the latest scientific insights and to talented WUR students, and in which WUR receives additional (corporate) funding for research, interesting topics for research and opportunities to see their research put into practice (Wageningen University & Research, 2021b).

In WUR's statement on partnerships the importance of scientific integrity, responsibility and transparency is stressed (Wageningen University & Research, no date c). Moreover, this statement also highlights WUR's role as honest brokers by claiming that WUR's research does not prescribe decision-making, but rather shows what the consequences of certain choices would be. WUR collaborates with partners, such as governments and businesses, so that these decision-making bodies can make well-informed decisions, but also emphasizes that these partners have no influence on the results and conclusions of the research (Wageningen University & Research, no date c).

1.2.1 Contrasting views on public-private partnerships at WUR

However, over the past few years WUR has received increasing criticism for the level and manner of its cooperation with the private sector. As WUR has historically always been a relatively applied research institution, collaboration with the private sector is by no means new; nevertheless, there has been a minor shift from public to private funding following the introduction of the Top Sectors policy. This resulted in some criticism of WUR employees. The student body, however, was not very involved in these discussions until only a few years ago (A. Sikkema, personal communications, 28 February 2022).

The appointment of Louise Fresco, chair of the Executive Board of WUR, into the supervisory board of plant breeding company Syngenta received a lot of criticism, including from WUR faculty, as many people claimed this could harm the integrity of the institution (Kleis, Louwerens and Sikkema, 2019). Another example are the buildings that the companies FrieslandCampina and Unilever have constructed on the WUR campus, with Upfield soon to follow (Winkel, 2020). As a response to this seemingly ever-closer interaction with the private sector over the past few years, activist groups like Extinction Rebellion Wageningen and ASEED have launched a number of protests and demonstrations, e.g. when Unilever opened a building on campus in 2019. The activist groups, that consist mainly of WUR students, claim that this collaboration has compromised WUR's claims of transparency, independency and even scientific integrity (ASEED, 2021). It must be noted that alongside the students directly involved in the activist groups, there may be large numbers of students who also sympathize broadly with their ideas.

A good example of such criticism of WUR's partnerships took place in October 2021, after Zembla, a Dutch TV show focusing on investigative journalism, broadcasted an episode about how the companies that had been involved in a research study back in the early 2000s had influenced the way the outcome had been framed (Zembla, 2020). In this study about the influence of organic food on health, in which WUR was also involved, a WUR professor was said to have manipulated how the outcome of the research was framed, as he did not want to be associated with anything 'organic' (de Winter, 2020). Obviously, such claims pose a serious

threat to the scientific integrity of this research. The Zembla episode was followed by a demonstration of Extinction Rebellion the week after, in which they glued themselves to the door in Forum, one of the education buildings on Wageningen Campus (Zegers, 2020).

The increasing discontent of the student body can also be seen in the Jester, a magazine that was founded in 2019 to represent the critical voices at WUR (Figure 3). The Jester was founded by students from RUW Foundation, a foundation that organises activities for students of a more critical nature. The students involved in RUW were of the opinion that there was not enough space for critical voices in Resource, WUR's official magazine, so they decided to create a space for this themselves. On their website, it is stated that one of their missions is "exploring Wageningen University & Research's ties to the private sector" (The Jester, no date). In a number of this magazine's articles, the collaboration with the private sector was also criticized (The Jester, 2020, 2021).
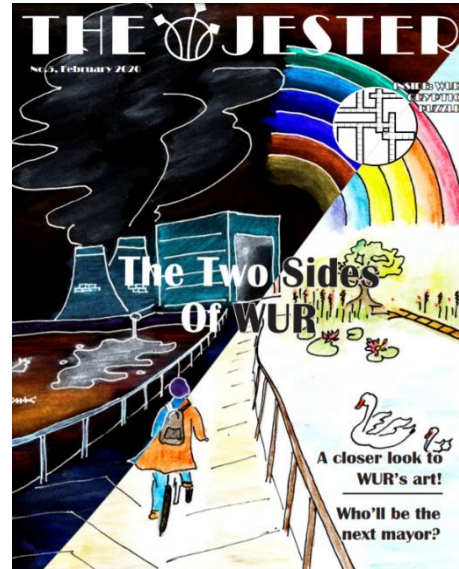

Figure 3: Cover of the February 2020 issue of The Jester.

However, there are also many parties within WUR who are in favour of collaborations with the private sector. They argue that these collaborations are essential to be socially relevant, and this line of thought is also implicit in national policies. The private partnerships not only help ensure that WUR receives sufficient funding to undertake their research and to help guarantee interesting topics for research, but also that the research WUR is doing has an impact in practice, i.e. by helping make powerful corporations more sustainable, according to the Corporate Value Creation department at WUR (Wageningen University & Research, 2021b). Moreover, this collaboration makes sure that more actors are involved in solving the global challenges that were previously mentioned, which can increase the impact of WUR on those challenges.

1.3 Research objective

Within WUR, research has already been done on what employees think about the collaboration with the private sector, but the voices of students have not been included to date in research (Ludwig, Macnaghten and Pols, 2019). Students, however, do have a stake in this matter. Therefore, it would be relevant to research student perspectives on what responsible collaboration with the private sector actually looks like in the present, and what it should look like according to them.

On the one hand, WUR's collaboration with the private sector can be valuable for students to do their thesis or internship at one of the companies that are located on campus. Besides, many students acknowledge that collaborating with companies is an effective way to make an impact in practice. On the other hand, although only few students are active members of the activist groups that frequently express their criticism on these partnerships and, more broadly, on the commodification of the university, their message resonates with a larger group of students. This can be seen, amongst others, from the fact that the Facebook page of Extinction Rebellion Wageningen has over a thousand likes. For this reason, it was deemed to be very interesting to include students as the focus of this research.

Many students admit that the collaboration of WUR with the private sector is a subject that they do not know all details about, which makes it more difficult for them to form an opinion on the subject. Hence, it would be helpful to study students' views on this using a methodology that

not only investigates their perspectives, but also provides them with some more information on the issue at hand. For this reason, this study was performed using the Citizens' Jury methodology, in which a group of students were given the opportunity to discuss the topic with a diverse group of expert witnesses who each have their own unique experiences regarding WUR's public-private partnerships. Moreover, the discussions amongst the students in the Citizens' Jury aimed at creating a proposed policy for collaboration between WUR and the private sector will hopefully help the students with articulating their own opinion and help them to better understand the opinion of others.

WUR formally exists of two separate institutions, Wageningen University (WU) and Wageningen Research (WR) (see Theoretical Framework). This research will focus on WU and WUR as a whole, as this is where students' criticisms are mainly directed towards. WR has a different business model that students are less familiar with, which means that WR has other challenges than WU. The focus will be on the partnerships of WU and WUR, hereafter referred to as WUR.

1.4 Societal relevance

WUR's partnerships with the private sector are viewed as having many positive aspects, as mentioned in the introduction. However, it remains also a contested topic on which different opinions can be found. In such debates, it is important that stakeholders with high interest and low power are not overlooked, of which students are a good example in the given context. Including them in debates on topics of this magnitude is an important aspect of being a responsible organisation. Inclusive processes like the Citizens' Jury have the potential to be of good help for inclusive policy processes. This research will look into how this deliberative method could be used to enable more inclusion in WUR's policy on collaboration with the private sector, and if and how this could be applied to other policy processes at WUR in the future.

As the private sector can play a large role in helping solve global challenges like climate change, WUR's public-private partnerships have the potential to lead to a more sustainable future, in line with the mission statement of WUR. If WUR focuses on proper implementation of the responsible research and innovation framework in its collaborations, these are more likely to contribute to solving global challenges.

Furthermore, there has been criticism on the commodification of science and education for a long time now (European Students Union, 2005; de Knegt, 2020). This research will look closer into what students think of this issue and what role they think the university plays in making sure that private interests are not overruling the public interests that universities should serve.

Lastly, in times where all kinds of information are increasingly available, including misinformation, reliable and transparent science plays a more important role than ever before. Although WUR already states that it highly values scientific integrity (Wageningen University & Research, no date c), the criticisms on possible conflicts of interest that might harm the institution's integrity must also be heard. By involving students in creating a policy for public-private partnerships, WUR shows that the criticisms and concerns are taken seriously and that it is a reflexive organisation that takes responsibility in safeguarding scientific integrity. This can lead to more acceptance of these collaborations amongst WUR students, and hopefully also to more fruitful partnerships for WUR.

2. Theoretical framework

In this section the theoretical concepts linked to this research study are described. First of all, it is important to understand the organisational structure of WUR and how the organisation currently dealing with matters of social responsibility. The concept of responsibility will be further explained in the section about responsible research & innovation. Next, the role of different frames or perspectives is described. Following, the concept of the Citizens' Jury, which is the approach used in this research, is explained, together with a description of how it can be applied in research. Lastly, the theory for the thematic analysis, which is the used methodology for data analysis in this study, is described.

2.1 Wageningen University & Research (WUR)

Formally Wageningen University (WU) and foundation Wageningen Research (WR) are two separate institutions (Wageningen University & Research, 2021a). WU was established in 1876 as agricultural college, and was recognized in 1918 as public university (Wageningen University & Research, no date b). WR, formerly known as Dienst Landbouwkundig Onderzoek (DLO), was founded by the Dutch government in 1877 and has institutions located all over the Netherlands. WU and WR are both part of a personal union, meaning that both institutions have the same Executive Board and Supervisory Board, with shared concern staff and facility services for central support of WUR (Stichting Wageningen Research, 2018). WU consists of one faculty with five different Science Groups each focusing on a specific domain. In these five separate Science Groups, the university departments and the related WR research institutions collaborate. Since 2016, WU and WR continue as one brand, Wageningen University & Research (WUR).

In 2017, the Corporate Value Creation department was created. This department focuses entirely on how things that are being done at WUR can have an added value in society. This is done by making WUR's facilities available for parties outside WUR, helping start-ups, and collaborating in new initiatives and in research projects. Therefore, what this department is working on is closely related to the topic of this research.

2.2 Citizens' Jury

The Citizens' Jury is a methodology for inclusive policy processes developed by the Jefferson Center, nowadays called the Center for New Democratic Processes, in 1971 (Center for New Democratic Processes, no date). Citizens' Juries are increasingly used for health policy issues, but can also be used for other policy issues (Street *et al.*, 2014). Usually a Citizens' Jury consists of a sample of 12-24 randomly selected citizens representative of the studied population (involve.org.uk, no date). It should take place over 4-5 days, as recommended in the guidelines of the Jefferson Center, but in practice most juries take place over the equivalent of 1-2 days (Street *et al.*, 2014).

The Citizens' Jury starts with getting to know each other and getting familiar with the topic. Then diverse expert witnesses can be invited to share their perspective, so the jury gets a good picture of the issue at hand. After this, the jurors discuss what they think and in the end a decision is made, either by voting or by consensus (involve.org.uk, no date). Citizens' Juries are a suitable method for including those that are currently excluded from political processes (Wakeford, 2002). Its inclusive nature makes it a very suitable methodology for including students in discussions on collaborations with the private sector. Although most Citizens' Juries are analysed quantitively, qualitative analysis is also possible (Street *et al.*, 2014). In this research a thematic analysis was performed.

2.3 Responsible research and innovation

The concept of responsible research and innovation has received increasing attention over the past two decades. Through the years, there have been many discussions on how responsibility can take shape. The responsible research and innovation (RRI) framework was created in 2013 for better governance of emerging science and technology. This framework, as developed for the UK Engineering and Physical Sciences Research Council (EPSRC), consists of four dimensions which together represent capacities that enable responsible research and innovation: anticipation, reflexivity, inclusion and responsiveness (Stilgoe, Owen and Macnaghten, 2013). The RRI framework and its four dimensions can also be applied to organizational structures and cultures of research conducting organisations.

The first dimension of responsibility is for institutions to develop capacities that enable the **anticipation** of (societal) effects that research and innovations can or might have. Here, anticipation can be linked to regulations for safeguarding scientific integrity, to discussions on the (positive and negative) impacts of public-private partnerships, to who will be held responsible if something goes wrong in a collaboration, and to what mechanisms are in place for if something does go wrong. In this study, we operationalise this dimension by exploring with students the extent to which students think WUR is taking responsibility for these matters.

The second dimension of responsibility is for institutions to develop and embed **inclusion** into their practices by involving all relevant stakeholders to share their views as a means to increase its legitimacy and to empower the voiceless (Stilgoe, Owen and Macnaghten, 2013). In WUR's partnerships, inclusion involves discussions on whose voices are included in dialogues on research and innovations (van der Molen *et al.*, 2018). This entails not only people on the board and in the organisation's participatory councils, but also that critical voices who are not in decision-making positions are taken seriously. In this study we explore how and to what extent students should be involved in both strategic and practical discussions on public-private partnerships.

The third dimension in the responsible innovation framework is **reflexivity** meaning that a responsible innovation is one that cultivates reflexive cultures and practices, defined as "holding a mirror up to one's own activities, commitments and assumptions, being aware of the limits of knowledge and being mindful that a particular framing of an issue may not be universally held" (Stilgoe et al., 2013, p.1571). In WUR, this can be implemented in various ways. First, reflexivity can be an important subject in education, in which students can be taught to regularly reflect on their own motives and practices. Next to this, reflexivity also entails the degree to which the organisation reflects on their own cultures and practices. The Corporate Value Creation department of WUR, and particularly Wageningen Dialogues, has the potential to contribute to reflexivity within the organisation. This can, amongst others, be done by acknowledging wicked problems and their complexity, and by being open to new frames in solving these wicked issues. According to the reflection on WUR's practices in the RRI-Practice Case Study Report, WUR's openness to solutions outside its own frame is limited (van der Molen *et al.*, 2018). In the Citizens' Jury the participants will discuss their views on WUR's reflexivity, including its openness to other frames.

Responsiveness, the fourth and last dimension, refers to the capacity of an organisation to being able to change directions as new knowledge or new insights arise. For an organisation, this can relate to how it responds to scenarios in which a certain approach was not successful. This unsuccessfulness can be related to one of the other three dimensions. For example, when a protocol for scientific integrity was not followed properly, how did the organisation react? And did they adjust their protocols in order to prevent similar mistakes in the future? Matters like

these are related to the responsiveness of an organisation. In this study we will investigate whether students think WUR is paying sufficient attention to this.

In this research, the RRI framework and its dimensions are used in the Citizens' Jury to assess WUR's behaviour with regard to collaborations with the private sector, and to help point out any obstacles that are currently restricting WUR from collaborating responsibly.

As part of the RRI-Practice project, which is part of the European Commission's Horizon 2020 program, Van der Molen *et al.* (2018) have published a report with a reflection on how RRI is implemented in research and innovation policies in the Netherlands, which has also been referred to above. This report includes a reflection on how Dutch policies influence RRI in the Netherlands. WUR is also included as a case in this report. However, in this case study, only employees were interviewed. This research will look at the view of students and include a reflection on how WUR is ensuring that all the dimensions of the framework come back in its research.

2.4 Framing

Like all individuals, WUR students have their own set of values, objectives, norms, interests, convictions and knowledge. This can lead to different frames, meaning different interpretations of what is going on in the world around them (Aarts and Woerkum, 2006). Conversations and discourse with others play a large role on how these frames are constructed (Ford, 1999). As interactions with others contribute to the frames people have, this can also be used to create new, shared frames. Ford (1999) describes organisations as networks of conversations, and states that conversations play a very important role in bringing about change in an organisation. Therefore, this study will look more closely into what role such interactions play in bringing different perspectives together in policy development.

2.5 Thematic analysis

A thematic analysis is a method for recognizing, analysing and describing themes within data (Braun and Clarke, 2006). It is a very broad, yet widely used method in qualitative research and should be seen as a foundational method for qualitative analysis. Because of its broadness, it is a method that can be applied quite flexibly (Nowell *et al.*, 2017). It can be used for either a rich description of the data set, or a detailed account of a particular aspect. Furthermore, there is a distinction in inductive ('bottom up') coding and deductive ('top down') coding. The former is a more spontaneous way of coding, and the latter is trying to fit the data into a pre-existing theoretical frame. The level of the analysis can also differ, it can be either more on the surface or looking into the underlying ideas and assumptions (Braun and Clarke, 2006). Even with the flexibility of the method, there are some steps that are followed in all thematic analyses (Braun and Clarke, 2006). First, the data are studied repeatedly to look for meanings, patterns etc. The second step is generating the initial codes that refer to separate data extracts. After the data extracts have been coded, the codes are analysed for potential themes. When some candidate themes have been developed, it is time to review whether the candidate themes are a good fit. Once this is finished, the themes are defined and named. This is also the stage where sub-themes are identified. Lastly, the themes have to be described accurately in the report.

2.6 Research question

Based on the theoretical concepts above, the following research question was formulated:

- How can a Citizen's Jury of students at WUR contribute to the creation of a policy on WUR's public-private partnerships?

The following sub questions were used to help answer this question:

- What are the different perspectives of WUR students on collaborations and where do they come from?
- How do students respond to the expert views from activist groups, from the corporate communication department of WUR, and from private sector collaborators at WUR, and how do these view contribute to a student policy on WUR private sector partnership?
- How can a Citizen's Jury best be used for an inclusive policy process at WUR?

3. Methodology

The research study is a qualitative study that uses an adapted Citizens' Jury methodology to explore the formation of a student-led policy on public-private partnerships that includes deliberation on perspectives of different expert witnesses. The Citizens' Jury originally consisted of 12 students, which is within the recommended size for Citizens' Juries. However, after the first session, two students did not show up anymore, resulting in a Jury of 10 students. Because of the COVID-19 measures, the first two sessions were held online in Microsoft Teams. The other three sessions took place onsite at WUR. In total, five sessions of approx. two hours took place. All sessions were facilitated by Aniek de Winter, the researcher, and during all sessions a second facilitator was present.

3.1 Participants

The participants of this study were a mix of (former) Student Council members, Programme Committee student members and other WUR students who were interested in the topic. For the recruitment of Jury members the students in the Student Council and Programme Committees were contacted via email. When not enough students had responded by the end of December, a message was posted in the Facebook group Wageningen Student Plaza, which has almost 40 000 members, many of which are WUR students. This email and the Facebook message briefly explained the research (appendix A). Participants were offered a compensation of €20 at the end of the process. In the email and the message, also a short survey was attached with some possibly relevant characteristics about the participants, e.g. age, study programme and political orientation. The last question in the survey was whether they thought collaboration between WUR and the private sector could be valuable. This question was added as openness to other perspectives on the topic is essential to be able to have a fruitful discussion in the Citizens' Jury. All respondents who qualified for participating in the research study were not particularly negative on this topic. The aim was to create a representative group for the WUR student population, using the available numbers on WUR's student population (Wageningen University & Research, no date a). More data on the participants can be found in Table 3.1, Figure 4 and appendix B.

Table 3.1: Information on the participants of the Citizens' Jury.

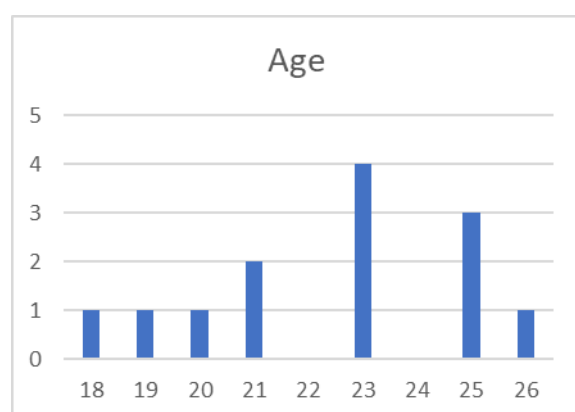| Gender	Male	8
	Female	4
	Other	1
Political orientation	Socialist	4
	Centrist	4
	Liberal	4
	Not answered	1
Nationality	Dutch	6
	EU	2
	Non-EU	4
BSc/MSc	BSc	5
	MSc	7
Number of different study programmes		9

Figure 4: Age distribution of participants.

As half of the participants were international students, this group was slightly overrepresented, compared to WUR's facts and figures (Wageningen University & Research, no date a). At first, males were also somewhat overrepresented, but this was only during the first session, as two of them dropped out after the first session. There was a good mix of study programmes, although there were no students included from social sciences study programmes. Fortunately, this was not strongly noticeable as there were some students present who had also taken social sciences courses, who brought in the social sciences perspective during the sessions. Overall the diverse group of participants was considered to be a good representation of the student body.

3.2 Process

The first session took place on January 12th, 2022 on Microsoft Teams. All participants were present. The session started with an explanation on the method of the Citizens' Jury and how it is applied in this study, including the planning of subsequent sessions. Then, the ground rules were explained to ensure a safe and open space for the discussions. After a short introduction to each other with some questions to open up the discussion, the jurors were asked about their experiences in Wageningen and at WUR. The goal of this was to create a space in which they felt they could safely express their experiences and opinions. After a coffee break, there was a brainstorm in breakout groups about the collaboration of WUR with the private sector, in which students were asked to share any experiences or assumptions they had regarding this collaboration. The brainstorm session concluded with a plenary homework exercise for the students to think about who they want to invite as expert witnesses for the next sessions. As a last exercise, the students were asked to formulate questions for Corporate Value Creation, the expert witness that was going to join us during the next session. The students were thanked for their participation and invited to the next session.

In the second session on January 19th 2022, which was also held in Microsoft Teams, the topic of responsibility at WUR was discussed. Initially, a representative of Corporate Value Creation was going to join this session, but unfortunately they were not available on this date, so the planning of this session was changed. The session started off with four (slightly controversial) statements on WUR and collaboration, in which students were asked to stand up if they agreed, and to remain seated if they disagreed. After this, the jurors had a role play using an opinion article from Resource, WUR's magazine. The students were asked to have a discussion on what WUR should do about the climate crisis, but then from the perspectives of a person in the opinion article of Resource. The goal of this exercise was to get an idea of how matters of responsibility are thought about at WUR, and to practice looking at other perspectives. After the role play, the RRI framework was introduced with a PowerPoint presentation. The presentation was followed by a long break, in which the jurors were asked to read two articles to give them some more background knowledge on WUR's collaboration with the private sector. The first article was a Resource interview in which a member of WUR's Executive Board and a member of Extinction Rebellion go into discussion about collaboration with the private sector. The second article was retrieved from the WUR website, and contains information on their policy on collaborations with the private sector. After the break, the articles were discussed in two breakout groups. The main outcomes of these discussions were then shared plenary. The session ended with the homework exercise from the previous session, in which three expert witnesses were chosen to be invited to the next sessions.

The third session took place four weeks later, on the 16th of February, as there were three exam weeks in between. Considering that it had been quite long since they last saw each other, the students were asked to introduce themselves again, and to share one insight and one question that they had after the first two sessions. Then, the questions that were formulated for Corporate Value Creation were discussed, that had been grouped into themes

by the facilitator before the session. Based on these themes, questions for Extinction Rebellion were also formulated. After discussing the questions for both the expert witnesses, a representative of Corporate Value Creation joined the session. After a presentation on what collaborations WUR is involved in, the students asked their questions. After a short break, the session continued with a presentation of a representative of Extinction Rebellion. The students asked him some critical questions. Then, the students were asked to summarize in pairs what the representatives said and what they thought of it, and put it on post-its that were posted on the blackboard. The answers were discussed in a plenary discussion, after which the session was closed.

During the fourth session on the 23rd of February, two expert witnesses working in the private sector joined us. The session started with a recap of what stuck with the participants from the last session. Also, the students were asked to write down what they expected from the session. Then, questions for the expert witnesses were prepared using the same themes from the previous session. After that, a representative of the Time-Travelling Milkman, a spin-off company from WUR making ingredients for vegan cheeses, joined the session. She told us about her company and the students asked her some questions about it. This was followed by a short break, after which an Unilever spokesperson came to tell us about her experiences and went into discussion about this with the students. After the expert witnesses had left, the students had a plenary discussion on what was discussed with the expert witnesses and what they thought of it. The session ended with looking back at if their expectations from the session were met.

The last session of the Citizens' Jury took place on the 2nd of March. In this session, the final advice for WUR had to be created. The session started with a check-in on how everybody was feeling. Next, there was a short recap per expert witness of what they said and what the students thought of it, using the word cloud tool from mentimeter.com. Per expert witness, the students were asked to type in some words, which then appeared on the screen. The main results were discussed plenary. These discussions were helpful for the students who could not make it to all the sessions to still understand what had been said, so they could participate in the discussion for creating the advice. After this recap, the advice was formulated using a focused conversation. This is a technique of deliberation in which the participants are asked to reflect on what they already know before coming to a decision. This technique exists of four stages: the objective stage, in which the surface facts were uncovered (which was already largely covered in the recap of this session), the reflection stage, which addresses "gut level" responses, the interpretive stage, in which the participants are asked to articulate what they find important, and finally the decisional stage, in which the students come to an agreement. In the middle of these four stages, there was a small break. After the facilitator led the participants through all of these stages and some main points for the advice for WUR were formulated, an evaluation of the process of the Citizens' Jury took place. After this, the Citizens' Jury was concluded, and all students were thanked for their participation with €20 vouchers.

A session plan was made before every session with some guiding questions to make sure all relevant topics were discussed. These can be found in appendix C. All sessions were recorded with consent of all participants. The first two sessions were recorded with Microsoft teams and the other three sessions with an audio recording device with two attached microphones to make sure all voices in the room were on tape. The sessions were transcribed in between the sessions and after the sessions had finished. For the first two sessions, the transcript of Microsoft Teams was used and for the sessions that took place offline the transcription software otter.ai was used. All transcripts were checked for accuracy by the researcher.

After the last session was transcribed, the advice report for WUR was formulated. This was sent to Corporate Value Creation after it was checked by the jurors. The advice report can be found in appendix D.

3.3 Thematic analysis

For the thematic analysis, the transcripts of all five sessions were checked on whether they contained information related to the research question or sub questions. After this first check, the transcripts were coded in an inductive way ('bottom up'), meaning that they were data-driven, without a pre-existing coding frame. Using these created codes, a draft thematic framework was created. The codes were listed per theme, after which they were all checked on consistency and all transcripts were reread to look for potentially relevant data that were previously overlooked. The thematic framework was refined throughout this process.

The analysis performed looked at the underlying assumptions, ideas and messages of the participants, meaning that the analysis was at the latent or interpretive level (Braun and Clarke, 2006). This also links to the constructionist or transformative paradigm.

4. Results

In this chapter the results of the Citizens' Jury are discussed. First I set out the recommendations of the Jury. This is followed by an analysis of where each recommendation came from: partially from the deliberations of the Jury aimed at developing their own views in sessions one and two, and partially in their negotiation and deliberation on the views and perspectives of the expert witnesses. Subsequently I analyse students views of WUR as a responsible institution aligned with the RRI framework. The chapter ends with a reflection on student views on the Citizens' Jury process and methodology itself.

4.1 The recommendations of the Citizens' Jury

During the last session of the Citizens' Jury, their advice was formulated, based on discussions with the expert witnesses in the previous sessions and conversations that they had with each other during all five sessions. The Citizens' Jury created their advice based on four themes: transparency on collaborations, reflexivity of WUR, scientific integrity and societal responsibility. Those themes are described in more detail in the advice report of the Citizens' Jury (appendix B). From those four themes, six key performance indicators (KPIs) were derived.

4.1.1 Transparency on collaborations

- Clear, active and inclusive communication about the criteria for collaborations with the private sector, the process for setting up collaborations, and who are involved in collaborations.

4.1.2 Reflexivity of WUR

- Regular evaluation on whether the collaborations WUR is involved in are living up to the values of WUR, both in the process and in the outcomes.
- Clear communication about what stakeholders you collaborate with, or do not collaborate with, and why.
- Active listening to the critical voices and creating spaces for dialogue with them.

4.1.3 Scientific integrity

- Clear communication regarding the protocols for scientific integrity to all people at WUR.

4.1.4 Societal responsibility

- Transparency and openness from the companies on campus, e.g. by organising open days.

4.2 How the Citizens' Jury recommendations were negotiated

The recommendations mentioned in the previous paragraph were outcomes of discussions between the participants of the Citizens' Jury and with the expert witnesses.

4.2.1 Transparency on collaborations

During the first session of the Citizens' Jury discussions on the transparency of WUR's collaborations already took place. When the students formulated questions for Corporate Value Creation during the end of this session, Sam expressed that they would like to ask:

> *"Why there is such a lack of, just, information about what exactly are the connections between those companies and the university."*

During the second session, it became clear that to the students that WUR does actually share some information on its collaborations on its website. Despite that, the students who

participated in the Citizens' Jury, thus are obviously interested in the subject, did not know that this information existed. The students would have liked to know the contents of this policy, but they did not know where they could find it. Therefore, the jurors agreed that existing information on collaborations should be easier to find. Felipe added to this that WUR was actually recognized as the most transparent university in the Netherlands this year. He formulated the problem as follows:

"So, yeah, it's maybe a lack of communication or they don't know how to reach… Uh, the message, how to give it."

The students also think that it would be helpful if there was more promotion on where to find this information, so students who are interested in this do not have to actively look for it themselves. However, it was also mentioned that the information should be provided in an understandable language, so people can actually understand what its meaning.

An example of a topic on which students knew very little about, was the diversity of stakeholders that WUR collaborates with. The students mainly know about the collaborations with the companies in the so-called business strip located on the south side of the campus. Here, the buildings of the multinationals are the largest and therefore the most visible. These companies are all active in the food domain. During the first session, the students stressed that they would like to see more diversity on campus, as Wageningen also has study programmes focusing on different sectors, e.g. ecology or climate studies. During the first session, Leander expressed his frustration on this:

"Everything seems to always come down to the food issue and then the food issue being the most important that there is, and as an environmental scientists that sometimes, often, feels like, oh, but you know, climate change is a thing. That's sort of important."

However, after reading WUR's policy on collaborations during the second session, and after going into discussion with the representative of Corporate Value Creation, the direction of this conversation changes, and it became clear that not the amount of diversity, but the communication about this diversity was the main issue. The students thought that it is very important that this becomes a higher priority at WUR. However, the representative of Corporate Value Creation gave the participants the expression that this department of WUR does not see this as their responsibility, which the participants disagreed with. The students said that they would like to be better informed about the diversity of WUR's partners, as this can be helpful for students to get an impression of where they might work in the future. It frustrated the students that Corporate Value Creation did not see this as their responsibility. After the representative had left, Leander, an environmental sciences student, said:

"I thought if you knew how much, how much, like, students of our domain would love to have companies on campus, and apparently they're there. And that just means there's such a disconnect between what they think students think and what students actually think."

Another question that the jurors had was what the process of collaboration looks like, and what criteria WUR has for collaborating with a company. The representative of Corporate Value Creation answered this by saying that WUR is both approached by partners, and approaching partners themselves, depending on the situation. The criteria for collaborations, however, were not discussed with the representative of Corporate Value Creation. The jurors thought it would be good if WUR were more transparent on those.

The jurors also said that they think WUR should be more transparent on what collaborations entail once they are established, including some basic information on funding relations. They also think this will help WUR with the acceptance of the collaborations, as the current lack of

information results in students filling it in themselves, which makes it easy to frame these collaborations in a bad way. The students acknowledged that not all information on collaboration can be shared, due to patents and other agreements, but they thought that it is important that WUR is as transparent on collaborations as it can be. Joshua said the following about this:

"I think when, when, when it's transparent enough, it has to be the core [information on collaborations]. Obviously they can't bring everything out in in the detail, but there are certain core ones that when it is out and I have the opportunity to know about it, I don't even think of going to find what was there behind it. So I will. I will not want to go further to, to punch holes in it because I've been given their core reason why this team is being done. Then you can see that this is transparent, because certain things can be transparent."

The other jurors agreed with this, and think that more transparency on what WUR's collaborations entail is important. Dian mentioned that this can also open up dialogue:

"It might also help in the understanding for parties such like Extinction Rebellion if Value Creation does decide to speak up, like, hey, this is who we are collaborating with, and this is why, then it might also start a conversation with parties like Extinction Rebellion who are primarily opposed to collaborations."

Such conversations can be helpful for the reflexivity of WUR on their collaborations.

4.2.2   Reflexivity of WUR

The topic of reflexivity was elaborately discussed after the representative of Corporate Value Creation joined the Citizens' Jury. The students felt that they were not conscious of the potential downsides of collaborations. One of the potential risks that students pointed out, was the way in which private interests can influence the perceived role of scientific research. During these discussions, parallels were drawn between applied research and private interests, and fundamental research and the public interest. The jurors pointed out the risks of commodification of scientific research by stating that a focus on applied research could lead towards a decrease of other types of research that can be just as valuable to society but cannot be directly converted into market value. The students felt that it is important that the research that is being done in partnerships with the private sector is also in the public interest, and is coherent with the mission of WUR. This was a main concern of Jan throughout the sessions, who said the following about this:

"It's not that they're doing, like, bad research, because it's good research, but it's research that, that is profitable for these companies. And for, because it's profitable for companies, doesn't mean that it's societal beneficial."

Angela had a contrasting view on this, and replied:

"But I think it's necessary that it's profitable, because if it's not, then no one will apply it, then what's the use of doing research at all?"

Jan, however, was not really convinced by this, and he thought that fundamental research, e.g. on long-term systemic changes in our food system, would also be very valuable for society, despite it not being marketable on the short term. This issue was also discussed with Unilever, but Unilever expressed that they feel that this type of research, although they are supportive of it taking place, does not fit their role in the value chain.

Jan felt that WUR should pay more attention to this topic in their collaborations, and that people at WUR should be careful that the research at WUR is not just in the private interest, but is

also serving the public interest, and is in line with the values of WUR. In the last session he said:

"I think if you have like a little bit of research that is about, like, these systemic changes that we maybe need, then if we only have this little amount of research in systemic changes, we take that very serious. If we're going to fund research that's about this Unilever research, maybe, we are more searching for different answers. And those answers get different questions. And then we're starting to shift away our research from the systemic changes, which we cannot earn money from, to more beneficial research, which raises more questions."

For clarification, the facilitator asked:

"So if I understand you correctly, not just focus on applied research, but also on fundamental research?"

To which Jan replied:

"A bit. Yeah. Yeah. And that's my main, yeah, that's a bit the concern that I have, which is not really, we didn't talk a lot about."

Although it was discussed from time to time in the previous sessions, Jan felt that his concerns on this topic had not been sufficiently addressed. The group acknowledged that this was an important issue, but they also struggled with finding solutions for this.

WUR is an organisation that is known for its focus on sustainability and making the world a better place, and many students in Wageningen share this perspective. In order to make sure that the partners that WUR collaborates with share this perspective, WUR needs to look critically at who should be included in collaborations. Therefore, the students recommend WUR to communicate clearly about what stakeholders it collaborates with, or does not collaborate with, and why. Intransparency on such decisions can result in criticism, as people might assume that WUR is collaborating with a party for the wrong reasons.

This was also elaborately discussed when the representative of Extinction Rebellion joined the session. One of the things he criticized was the involvement of Louise Fresco, chair of the Executive Board of WUR, in the Advisory Board of Syngenta. He thought this would lead to WUR being favourable to plant breeding companies.

Because of the influence he suggested it has on WUR's neutrality, the representative said that he thinks that people who have experience in the private sector should not be allowed in the Executive and Advisory Board of WUR. The jurors felt differently about this, and thought that the expertise of such experienced people in the board could be very valuable for leading an organisation like WUR. Leander mentioned:

"If you want your research to have any impact, then not having, then you need some, some cooperation with third parties ,whether that be the private sector or any other sector, and if neither the Executive Board nor the Advisory Board has that connection, then how can you lead an exciting and relevant university?"

The representative then stressed that someone experience in other, non-private sectors would make a suitable board member to him. Although the students did agree with the statement of Extinction Rebellion that Louise Fresco might be influenced by her role in Syngenta, the students did not seem convinced that excluding everyone with experience in the private sector from board positions is a good solution.

Another question that came up was whether the involvement of board members in Syngenta or other large companies could not also lead to a good influence of WUR on such companies. However, the representative of Extinction Rebellion did not think that realistic. After the representative had left the session, Felipe said:

"For me, that's a contradiction, to say Louise Fresco influence, Syngenta influences Louise Fresco in Wageningen, but not Wageningen can influence…"

The other students also expressed their doubts on this, both during and after the representative joined the session. Still, the students also thought it was important that the motivations behind collaborations with companies are clear. Hence, the Citizens' Jury recommends WUR to clearly communicate about what stakeholders you collaborate with, or do not collaborate with, and why. Lack of communications on collaborations can result in raised eyebrows. As Claudia mentioned:

"When Unilever just got here, I was like, what is this? Why is everybody, like, so against this? And then, 'cause I didn't know at first what was going on. And then I started to learn […]. Like, I heard it from other students"

The lack of communication from WUR's side resulted in Claudia listening to other people on this subject, who were very critical on WUR's collaboration with Unilever. This made also her doubt how helpful the collaborations with the private sector are.

Nevertheless, the companies that collaborate with WUR still do believe that this collaboration will help with solving grand challenges together. The influence of the mindset in Wageningen was also discussed with the Time-Travelling Milkman. Their representative said the following on what being in Wageningen had meant for her company:

"And because, for example, me and Dimitris have studied in Wageningen, you, I don't know, you get trained to have that, I don't know, that weight carrying around you, of making the world a better place."

Unilever also referred to the values of WUR, but they framed it a bit differently, saying that they moved their Foods Innovation centre to Wageningen to tackle global challenges together with like-minded partners.

WUR's openness to criticism was also discussed. For better reflexivity on your own motives and values, it can always be helpful to listen to criticism. This also applies to WUR and its collaborations. During a discussion on this in the second session, Jan expressed this as follows:

"Of course there are bad sides on this, but they're kind of fixing it all, but there's definitely something that's not fixed. And I think you are stronger if you also reflect on the things you didn't fix."

This lack of reflection on both the good and the bad sides of collaborations were discussed again after the representatives of Corporate Value Creation and Extinction Rebellion had joined the session. The contrast between the two was very large, as Corporate Value Creation seemed to be blind to the bad sides of collaboration, and Extinction Rebellion seemed to be blind to the good sides of collaboration. This was disappointing to the students, as they would have liked to see more reflection on this from both expert witnesses. The jurors saw more recognition of both the good and the bad sides of collaboration from the Time-Travelling Milkman and Unilever, which resulted in even more disappointment of the students in the apparent blindness of Extinction Rebellion, but especially of Corporate Value Creation on this issue.

Related to this was the point that WUR sometimes seems to be a bit stuck in their own narrative of collaboration to make the world a better place, and of having to feed the world. The jurors thought it would be helpful if WUR were more open to other narratives, as probably not all solutions for the problems society is currently facing can be found in the current one.

4.2.3 Scientific integrity

The topic of scientific integrity was already discussed during the first session of the Citizens' Jury, when students shared their experiences of collaboration with the private sector with each other. Jan told the other students about his experience from Academic Consultancy training, a course in which students are asked to advise an external partner of WUR in an eight-week project. He says the following about this:

"Like in my Academic Consultancy Training, the commissioner just wanted a certain result. Like, he wanted that his project would have a positive effect on, on ecology in some area. So every time we were doubting about this positive, uh, effect, then he was like saying, like, no, no there needs to be a positive effect there."

Jan felt that the external partner, referred to here as the commissioner, tried to interfere in the students' project and tried to push him and his team members towards a certain result. Of course, if a partner of WUR tries to steer the outcomes of a research project in their desired direction, and the researchers give in to this, e.g. by choosing an alternative research methodology, this would be a very serious danger to the institution's integrity.

Nonetheless, it is still commonly claimed at WUR that the involvement of the private sector does not influence the scientific integrity its research. For this reason, expert witnesses of either side were invited to share their views with the students.

In session three we were joined by a representative of Corporate Value Creation. The representative acknowledged that there has been criticism on WUR's scientific integrity in collaborations, and she told us that WUR has policies for safeguarding scientific integrity. Unfortunately, the jurors did not have the opportunity to ask more in-depth questions on this topic due to a lack of time.

Later that afternoon, after the representative of Corporate Value Creation had left, we were joined by a representative of Extinction Rebellion, who criticized these scientific integrity policies of WUR. He mentioned a number of studies that were analysed by investigative journalists where it seemed that scientific integrity was not safeguarded at WUR. This made Sam doubt the effectiveness of the protocols for scientific integrity:

"When those problems actually arise, what does the university do about them? Like how do they both handle it publicly and also within the research […]. And also, like, how does your prevention system work, when there is more than one example?"

For this reason, the students advise WUR to clearly communicate on the protocols for scientific integrity to all people at WUR. This means that not only employees should be informed about them, but also students.

Scientific integrity was also discussed with the representative of Unilever, who seemed to acknowledge the problems of scientific integrity a bit more than the representative of Corporate Value Creation. Unilever's representative stressed multiple times that scientific integrity should be safeguarded in collaborations, and that the integrity of both the university and the company should never be at stake. She also mentioned that the scientific integrity, how she sees it, is mainly the responsibility of the university, as the company usually comes in at the stage when the new knowledge has to be applied.

Although the jurors believed that Unilever's concerns on scientific integrity were sincere, the students were aware that it might not always play out this way in practice. Moreover, other companies might have a different view on this.

Despite the claims of WUR and, to a lesser extent, Unilever, the jurors still expressed their doubts on the effectiveness of WUR's scientific integrity protocols. The main reasons for this were the fact that Corporate Value Creation did not go into detail on how this is safeguarded specifically, and that Extinction Rebellion shortly explained quite a lot of examples of cases where it appeared difficult to maintain scientific integrity. However, the jurors did realise they did not get the chance to look into of the contents of WUR's protocols for scientific integrity, so they found it difficult to make strong statements on those being insufficient.

4.2.4 Societal responsibility

As previously mentioned, the mission of WUR is *to explore the potential of nature to improve the quality of life*, and WUR's partnerships with the private sector are said to contribute to this. However, during the last session, the students still expressed their doubts on to what extent the collaborations with the private sector are supporting this mission.

During the last session, when the jurors discussed what they thought of the stories of the expert witnesses, Sam said that she missed some information of Unilever on how their collaboration with WUR actually plays out in practice:

"What is this collaboration resulting in at the end of the day, like, what are the positive changes in the company or their products or how are they using this said research that they're collaborating upon?"

Additionally, the jurors still did do not see the added value of companies being located on campus, instead of in the proximity of the campus. The students thought it should be more clear why, or if, this is necessary, and how this will help WUR towards achieving its mission. The students thought this could receive more attention in the communication of WUR and its partners.

Therefore, the Citizens' Jury recommends WUR to stimulate transparency and openness from the companies on campus, e.g. by organising open days. Open days might be a nice and relatively easy way to show students and the general public what the impact of collaborations is.

4.3 The views of the Citizens' Jury on WUR as a responsible institution

The criticism of activists on collaborations with the private sector can be considered criticism on WUR's societal responsibility. In this section, the views of students on the responsibility of WUR's conduct are discussed, with help of the dimensions of the RRI framework. Many points in this discussion overlap with the recommendations that the jurors gave in de advice report.

4.3.1 Views on anticipation

The RRI framework was introduced in the second session, after which the students were asked to read an interview with an Executive Board member of WUR and WUR's policy on collaborations. The students were asked to reflect on whether all AIRR dimensions are sufficiently addressed in WUR's collaborations. Sam mentioned:

"I think that it's kind of missing the part about anticipation. Because no one is really saying whose responsibility it is to actually do something about all those problems that we have. Like, they're saying, yeah, we're all, we're all responsible. But what if someone, something, like, goes wrong. And that was actually, like, the base of anticipation."

Where everyone is responsible, no one is really responsible. Sam thinks this can result in problems in case anything goes wrong, and they thought some information on what mechanisms are in place for who will be held responsible in case something does go wrong would be helpful.

The topic of anticipation is also closely related to WUR's protocols for safeguarding scientific integrity. Although the representative of Corporate Value Creation shortly mentioned that they exist, it was still not clear to the students what these protocols look like, and how they help prevent things from going wrong. The students were especially uncertain about this when the representative of Extinction Rebellion named a number of examples in which it was not clear if scientific integrity had been maintained.

Furthermore, anticipation includes discussions on potential positive and negative impacts on collaborations. However, the students thought that there was not a lot of space for discussion on the topic, especially on the negative consequences. In the last session, Angela said:

"I think that Value Creation could take a bit more responsibility in looking at other sides of the discussion, or talking about it."

WUR seems to be very aware of the potential positive impacts, but the student body was of the opinion that their should be more discussion on potential negative effects of WUR's partnerships.

4.3.2   Views on inclusion

When Extinction Rebellion joined the third session, the inclusiveness in decision-making at WUR was shortly discussed, and in particular the role of the Student Council. Extinction Rebellion said they do not have access to information that is not related to students, so they cannot request information on research studies that raise questions amongst students. After the representative had left, the Student Council members who were part of the Citizens' Jury said the following on this:

"Yeah, very interesting that you brought this up, because the Student Council has the right to information. So we have the right to ask more information about any topic, including this. And if we have an answer, or an explanation, we want to know more about this because we think this is important, the university is obliged to provide us that information."

However, the Student Council formally only has influence in WU, not in WR. Still, as many Student Council members are also member of the WUR-Council, which is for both WU and WR, the information is not as inaccessible to the Student Council as the representative of Extinction Rebellion made it seem.

Nevertheless, although the Student Council may have access to this information, there are also many critical students who are not in the Student Council and whose voices are not heard. During the last session, the students discussed that WUR should more actively try to include the critical students, e.g. those involved in Extinction Rebellion, in discussions on their public-private partnerships. Jan argued that this can lead to improvement of the collaborations:

"If you want to improve something, you should listen to your most extreme critics. And yeah, I don't know if the university really does that."

Other jurors then mentioned that WUR has actually stopped talking to Extinction Rebellion after a number of letters that they sent to which WUR never replied. This indicates that WUR does not take critical voices seriously, which is a serious concern if it aims to be an inclusive organisation.

4.3.3 Views on reflexivity

After Corporate Value Creation had joined the session, the jurors were taken aback by their lack of reflexivity. One of the points on which they missed reflexivity was WUR's reputation. When looking back on how the students had experienced their discussion with Corporate Value Creation during the last session, Sam entered "narrow-sighted" into the world cloud, with the following explanation:

"Well, yeah, for me it seemed that they had this really idealistic point of view of what it should look like, but not really invested in what it does look like to the outside people to us, like, what this relationship looks like, that there have been problems. They were like no, everything is fine. We have, like, a system and everything."

They feared that to the outside world it seems that WUR's reputation is influenced by the reputations of the companies that they collaborate with, and that to the outside world it seems that WUR is just carrying out the wishes of the private sector, rather than following their own moral compass. They also feared that this reputation might influence the way that they will be perceived on the labour market after graduating from Wageningen University. They thought it is important that WUR is mindful of their image, and how this can influence the people connected to the organisation.

Another problem related to reflexivity was pointed out by the representative of the Time-Travelling Milkman, who stated that funding relations with the private sector inhibit the innovation cycle. This is conflicting with the role of universities to transfer knowledge for the benefit of society, as stated in the Higher Education and Research Act (*Wet op het hoger onderwijs en wetenschappelijk onderzoek*, 2022). As an example of how knowledge transfer can be inhibited, the representative of the Time-Travelling Milkman mentioned the research at WUR related to the topic of interest of their company, oleosomes. The scientific director of the Time-Travelling Milkman is involved in this research. She says the following about this:

"He's doing a lot of research together with his students on this subject. But because all the research is funded from different directions, he can't just give that knowledge to like directly, when it's not published yet, to us."

Naturally, this means that innovations cannot take place as quickly. The representative also pointed out that patents on certain innovations make it difficult for start-ups like themselves to work on product development. During the last session, in which the advice for WUR was created, Jan pointed out how he would like to see it:

"For me, this Time-Travelling Milkman, with the eye on this research, which is developed in people's masters, PhDs, kind of kept within some contracts and stuff. So get it out, to start, to just start, start-ups as the Time-Travelling Milkman. That is, I think, really important."

The other jurors agreed that ownership of knowledge inhibits the transfer of knowledge, and that knowledge should be more publicly available, as scientific research should be for the public interest. However, it was not discussed in detail how this system of patents should change. Nonetheless, it seems important that WUR reflects on how their role of knowledge transfer for societal benefit can be protected in collaborations with the private sector.

Openness to other frames is another important aspect of reflexivity. The students thought this was very limiting in the case of WUR. This was in particular a frustration for Jan, who mentioned:

"It's always the same narrative that's always used, like, we need to work together and then we can create a higher value. And that was a lot what WUR used."

He found it refreshing to hear a different narrative when Extinction Rebellion joined the session, as he was a bit tired of always hearing the same story of WUR. In the Citizens' Jury, it was mentioned several times that WUR seems a bit stuck in their own frame. The student body was of the opinion that WUR should try to be more open to other frames.

4.3.4 Views on responsiveness

The topic of responsiveness was shortly discussed at the end of the third session, after the representatives of Corporate Value Creation and Extinction Rebellion had left. The examples that were mentioned by Extinction Rebellion made Sam wonder:

"When those problems actually arise, what does the university do about them? Like, how do they handle it publicly, and also within the research?"

This is something that the representative of Corporate Value Creation did not disclose any information about.

4.4 Students' views on the Citizens' Jury

In this section, the evaluation of the process and the methodology by the jurors is described. This evaluation took place at the end of the last session to assess its suitability for the use of policy creation at WUR. Some elements of this evaluation by the students might also be overlapping with the discussion, in which a reflection on the methodology is also included.

As the aim of this research was that students could share their honest views on collaboration between WUR in the private sector, some ground rules were created by the facilitator to create a safe space. In the first session, these ground rules were explained, in which it was stressed that the Citizens' Jury is an open and free space in which all participants can freely speak their mind. During the evaluation, Sam said the following on this:

"I expected to, expected it to be way more stiff, way more formal. And to be kind of, a bit more restricted. Like not, I didn't expect to be able to voice out everything that I have in mind."

The other jurors also mentioned that they really appreciated the open discussions, in which everybody could safely voice their own opinion.

The facilitator also tried to create a certain degree of autonomy for the participants of the Citizens' Jury. During the first session, the jurors were asked by the facilitator to think of what expert witnesses they wanted to invite. In the evaluation, the students said that they appreciated this freedom of making some choices themselves. The jurors were also asked to develop questions for Corporate Value Creation, the expert witness that was supposed to be joining the next session. Those questions were used as a basis for the questions for the other stakeholders as well.

As the first two session were online, this sometimes resulted in some online issues. Also, it took away the option for the jurors of having informal chats with each other in between. Jan said the following on this:

"Like a bit more maybe informal sessions in between, or that you can a bit, like, connect with some people to make it a bit fluent, and maybe some other person shares a bit your view."

Another point that came up during the evaluation in the last session was the it is a rather time-consuming process. Nevertheless, the jurors also said they would have liked to have more time for including stakeholders with a different point narrative. Sam acknowledged that it is challenging to find a balance here:

"It would have been nice to have some more people, but also like, it is time consuming. And also, like, we bind other people coming to this thing. So yeah, it makes sense that it might not be perfect. Like as a result."

The dependency on who wants to come voluntarily was pointed out for the expert witnesses, but also for the students who participated. Recruitment proved challenging. Still, the students thought there was a nice mix of backgrounds of the participants.

Lastly, the students also thought the methodology of the Citizens' Jury, with expert witnesses to share their views and experiences, was very helpful for creating an advice for WUR.

4.5 Summary of the results

In this chapter, the recommendations of the students in the Citizens' Jury were described, followed by an analysis of the discussions and negotiations which resulted in those recommendations. The students thought WUR should pay more attention to transparency on their collaborations, and create more spaces for evaluation and reflection at WUR, in which also the critical voices are included. Then, the RRI framework was used in the Citizens' Jury to assess WUR's behaviour with regard to collaborations with the private sector, and to help point out obstacles that are currently restricting WUR from collaborating responsibly. Lastly, the evaluation by the students of the Citizens' Jury process and methodology were described. The experiences of the students were mostly positive.

5. Discussion

In this qualitative study, the use of a Citizens' Jury of students at WUR for the creation of a policy on WUR's public-private partnerships was investigated. The methodology was feasible and proved to be helpful for including students' perspectives in discussions on this topic.

5.1 What the outcomes of the Citizens' Jury mean for WUR

One of the most interesting outcomes was that all students seemed to agree that there should be more space for discussions with critical voices. Although the students did not entirely agree with the story of Extinction Rebellion, and actually thought they had the least convincing story, students still thought that it is important that their concerns are taken seriously.

Being open to critical voices also relates to reflexivity of WUR, as being reflexive also means "being mindful that a particular framing of an issue may not be universally held" (Stilgoe et al., 2013, p.1571). The frame of WUR that is currently being held is that of "solving global challenges together". However, in this frame, there is also the risk that the frame of the university is bending towards that of the private sector, which would be a plausible consequence of close collaboration. As a result, WUR could compromise on their own values, in favour of the private sector, without realising it themselves. The jurors pointed out that the corporate staff of WUR does not seem to realise that there may be risks of collaborating with the private sector, and seems so stuck in this frame that they are blind to the downsides of collaborations. This perception of the students becomes clear in the results.

The wicked problems that WUR is dealing with have numerous different solutions, which all have their own consequences. When trying to help solve a global challenge, the students remarked that WUR does not seem to understand that there are also solutions outside their own frame. Extinction Rebellion, for example, has an entirely different way of looking at the wicked issues that WUR is working on. In order for WUR to become a more responsible organisation, the jurors thought they should be mindful of these other frames, and explore the solutions that may be found in them.

Next to reflexivity, active listening to critical voices can also help WUR in becoming more responsible through the other three dimensions. It can make WUR more anticipatory, as they already take potential negative effects into consideration. It also leads to more inclusion, as students with low power and high interest are also included. Lastly, it can also lead to more responsiveness, as critics usually have a number of suggestions for different directions that WUR could take when new knowledge or insights emerge. One could also argue that the lack of responsiveness from WUR on the examples in which problems arose, leads to more criticisms on these collaborations. Thus, proper implementation of the fourth recommendation, "active listening to the critical voices and creating spaces for dialogue with them", can help WUR in becoming a more responsible organisation, and having more responsible collaborations. The other recommendations can contribute to making these dialogues more fruitful. Suggestions for how to implement this can be found in the recommendations chapter.

In the Citizens' Jury there was also a discussion on WUR's reputation. Especially the ties between Louise Fresco and Syngenta are something that influences how WUR is perceived by the public, and WUR should be aware that this makes them appear a less neutral organisation. However, this discussion might soon take a different turn, as Sjoukje Heimovaara will follow up Louise Fresco as chair of the Executive Board of WUR in July 2022. She is currently working as chair of the Agrotechnology & Food Sciences Group and has less close ties with the private sector than Louise Fresco.

Another topic that was elaborately discussed was the communication of WUR to its students and to the outside world. The students pointed out that WUR should be far more transparent on what the collaborations with the private sector entail.

Although transparency or openness is not part of the RRI framework, it does seem an important aspect of being a responsible organisation. Burget, Bardone and Pedaste (2017) argue that transparency can be grouped under the dimension responsiveness. However, Forsberg *et al.* (2015) mention that this dimension is underdeveloped in the RRI framework. Richard Owen, who co-created the RRI framework, admits that openness and transparency could indeed be added to the framework's dimensions, "even though the language of opening up has been a prevalent theme throughout" (Owen, 2014, p.116).

Wageningen Dialogues can play a key role in addressing topics of transparency and communication. This has the potential to become the ideal platform for discussions on such topics, which can enhance the transparency of the organisation and can help WUR with understanding what students and other stakeholders would like to know more about.

Another discussion that took place was on the role of scientific research. Students expressed their doubts about whether ties with the private sector actually lead to "science for society", which is how Corporate Value Creation often frames it. To the students, it seemed to shift the attention away from research that does not immediately lead to financial profit. This is similar to other criticisms on commodification. This is another topic that WUR should be more mindful of. More transparency on their motivations for collaborations can help the public in better understanding them. Reflection on how they are creating knowledge for the public good can also be helpful in this discussion.

5.2 Reflection on the methodology

The methodology of the Citizens' Jury seemed appropriate for addressing the issue of collaboration between WUR and the private sector. In this section, the strengths and weaknesses of the use of this methodology in this study will be addressed.

Unfortunately, before this study started, the regulations for the COVID-19 pandemic made it impossible to recruit participants offline, in addition to the online recruitment. Nevertheless, there was still a nice and diverse group of students that had been recruited online, who were interested in this topic for various reasons. Some were interested because of an experience they had with a company, others had heard stories about collaborations with the private sector which had triggered their attention.

As mentioned in the methodology section, the group of students that participated in the study was quite a nice mix of gender, study programme etc. However, the group was slightly too small for a Citizens' Jury. The recommended size of Citizens' Juries is 12-24 members (involve.org.uk, no date), whereas this group consisted of only ten students. Moreover, participants are usually recruited using stratified random sampling. Unfortunately this was not possible for this research, as there was not enough time and budget available. There was also no budget available from the chair group for an honorarium for the participants. This caused some difficulties in recruitment, as this is usually a good incentive for students to participate in research studies.

Onsite meetings at WUR were preferred over online meetings, as interaction between participants in an online environment is more difficult to achieve. Sadly, because of the COVID-19 regulations, it was not possible to hold all five meetings onsite at WUR. The first two meetings were held in Microsoft Teams, which had several disadvantages. First, there were some online issues sometimes, e.g. when participants had Wi-Fi problems. Also, there were less opportunities for students to interact in an informal setting. Moments where the students

have a chat over a cup of coffee together can be very valuable for exchanging perspectives too. Fortunately, everyone seemed used to interacting in the online environment after almost two years of working from home, so it did not cause a lot of trouble with interactions during the sessions itself.

The participants of this study thought that half an hour of discussion with an expert witness was sometimes a bit short. This was also confirmed by some of the expert witnesses. It takes some time for the jurors and expert witness to learn to speak the other's language, so more time to exchange perspectives with the expert witnesses might be helpful for future use of the Citizens' Jury.

This research study was performed using only a thematic analysis of the transcripts. There was no methodological triangulation used in this study due to time limitations. This can be considered a weakness of this study.

Still, the Citizens' Jury was a helpful methodology for this issue. The students experienced the Citizens' Jury as a safe space, where they could freely speak their mind. There was room for contrasting opinions, and for discussions on those. Moreover, the jurors could choose themselves which expert witnesses they wanted to invite, so the process was not entirely set up by the researcher. The students also felt that they learnt something about the collaborations with the private sector during the process, which they appreciated. Furthermore, the perspectives of WUR students on collaborations with the private sector were very diverse at the beginning, but they started to better understand each other's views as they learnt more on the topic together. Finally, at the end of the process, an advice was created that all jurors seemed to be content with. For those reasons, it can be concluded that the Citizens' Jury was a suitable methodology for the development of advice for WUR.

6. Conclusion

This research study has looked into the suitability of the Citizens' Jury for creating an advice for WUR on what students think WUR should consider regarding collaborations with the private sector. The Citizens' Jury methodology was suitable, and the students appreciated that they learnt more about the topic during the process, which helped them in formulating good advice for WUR.

The Citizens' Jury created an advice report in which they gave advice on four topics. On these topics, six KPIs were formulated. The main points that came out of the Citizens' Jury were transparency on collaborations and active listening to criticism on collaborations. The students were also open to see the good sides that collaborations may have, but felt there was still room for improvement. The students thought that the six KPIs that were formulated by the Citizens' Jury can help WUR towards more responsible collaborations.

Under these conditions, collaboration with the private sector can indeed be valuable, and can contribute to combatting issues like climate change, which can in the end lead to a more sustainable future.

7. Recommendations

As in this study the Citizens' Jury has shown to be a suitable methodology for the development of advice for WUR, it would be interesting to see if this can be applied for other policy-related topics as well. There are some points, however, that need to be given extra attention when organising a Citizens' Jury for policy processes at WUR in the future.

It is important to note that the successfulness of the Citizens' Jury is very dependent on the expert witnesses' interest in the topic and their availability. Some great planning skills and facilitation are required for this. The expert witnesses should be contacted at an early stage to make sure that an alternative option can be found in case they cannot come. Also, it is important that there is sufficient diversity of opinion among the expert witnesses, as all relevant perspectives should be discussed in the Citizens' Jury to get a complete picture of the issue at hand. It is also recommended to make use of a stratified random sampling strategy for future use of the Citizens' Jury methodology. This creates a more reliable sample of the population. Moreover, a small honorarium for the participants can also be helpful for recruitment.

Based on the outcomes of this Citizens' Jury, six KPIs were formulated. Here, a few suggestions will be given on how these can be implemented.

The department Corporate Value Creation could take up the recommendations regarding transparency on collaborations by making someone responsible for ensuring that all information on the criteria and motivations for collaborations, the process for setting up collaborations, and who are involved in collaborations, is clearly visible. This information can be presented on WUR's website. This also means that all decentralised collaborations in chair groups will have to be communicated towards one central point, which will create a clearer overview for the university itself. The past few months the need for such an overview has grown stronger, as this can also be helpful for when certain geopolitical situations emerge in which one might not want to collaborate with researchers or research institutions from a certain country anymore. Another suggestion that might be very helpful for better coordination of collaborations at WUR, is a general code of conduct for collaborations. This can be developed by Corporate Value Creation and should be approved by the WUR-Council before introduction as a feasibility check. This code of conduct should also be presented on the website with information on WUR's collaborations.

To make sure that students are also informed of collaborations, it is important to look for the right ways to reach them. This could also become the responsibility of Corporate Value Creation, but the Corporate Communications & Marketing department and the Student Council might have helpful experience with this topic.

Moreover, to create more spaces for internal reflection at WUR, a Citizens' Jury should be established annually by Corporate Value Creation and/or the WUR-Council, in which researchers, corporate staff members and students of WUR are included. This Citizens' Jury should be moderated by an experienced facilitator who can make sure that the group is a safe space in which all voices are taken seriously and given equal attention. This group can create an advice on WUR's partnerships, like this Citizens' Jury has done.

Active listening to critical voices seems a perfect job for Wageningen Dialogues, the department of WUR that is aimed at bringing different voices together and have them go into dialogue. An annual dialogue on collaboration between WUR and the private sector can be the perfect opportunity to include critical voices. During this dialogue, the advice of the Citizens' Jury can also be presented, which can be a good starting point for discussions.

References

Aarts, N. and Woerkum, C. M. J. van (2006) 'Frame Construction in Interaction', *Multi-Organisational Partnerships, Alliances and Networks. Engagement., 12th MOPAN International Conference, Pontypridd, UK, 22-24 June 2006.*, pp. 228–237. Available at: http://library.wur.nl/WebQuery/wurpubs/353337.

ASEED (2021) *Stop the Corporate Agenda*. Available at: https://aseed.net/wp/wp-content/uploads/2021/05/wur-narrative-booklet-.pdf.

Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2), pp. 77–101. doi: 10.1191/1478088706qp063oa.

Burget, M., Bardone, E. and Pedaste, M. (2017) 'Definitions and Conceptual Dimensions of Responsible Research and Innovation: A Literature Review', *Science and Engineering Ethics*. doi: 10.1007/s11948-016-9782-1.

'Cambridge Academic Content Dictionary' (2017). Cambridge University Press.

Center for New Democratic Processes (no date) *How We Work | Citizens Juries.* Available at: https://www.cndp.us/about-us/how-we-work/.

Van Dijck, J. and Saarloos, W. (2017) *The Dutch Polder Model in science and research*, *The Dutch Polder Model in science and research*. Amsterdam: Royal Netherlands Academy of Arts and Sciences. doi: 10.5117/9789462988163.

Erken, H., van Es, F. and van Harn, E. J. (2022) *Nut en noodzaak van (publieke) kennisinvesteringen*. Available at: https://economie.rabobank.com/publicaties/2021/november/nut-en-noodzaak-van-publieke-kennisinvesteringen/.

European Students Union (2005) '2005 Policy Paper "Commodification of Education"', pp. 1–5. Available at: https://www.esu-online.org/?policy=2005-policy-paper-commodification-of-education#:~:text=The Concept of Commodification of,of knowledge and cultural capital.

Ford, J. D. (1999) 'Organizational change as shifting conversations', *Journal of Organizational Change Management*, 12(6), pp. 480–500. doi: 10.1108/09534819910300855.

Forsberg, E. M. *et al.* (2015) 'Assessment of science and technologies: Advising for and with responsibility', *Technology in Society*. Elsevier Ltd, 42, pp. 21–27. doi: 10.1016/j.techsoc.2014.12.004.

involve.org.uk (no date) *Citizens Jury*. doi: 10.4135/9781412959216.n51.

Kleis, R., Louwerens, T. and Sikkema, A. (2019) 'Commissariaat Fresco omstreden', *Resource*. Available at: https://resource.wur.nl/nl/show/Commissariaat-Fresco-omstreden.htm.

de Knegt, S. (2020) *Fundamenteel onderzoek is niet alleen nieuwsgierigheid*, *ScienceGuide*.

Ludwig, D., Macnaghten, P. and Pols, A. (2019) 'Achieving responsibility at Wageningen University & Research', p. 44. Available at: https://doi.org/10.18174/475712.

Ministry of Economic Affairs (2016) 'Topsectors', pp. 1–12. Available at: https://www.topsectoren.nl/binaries/topsectoren/documenten/brochures/2016/02/25/hoe-en-waarom-topsectoren/topsectoren-hoe-waarom-nldse-versie-1-okt15-verkleind.pdf.

van der Molen, F. *et al.* (2018) *Report from National Case Study - The Netherlands*. Available at: https://www.rri-practice.eu/wp-content/uploads/2018/09/RRI-Practice_National_Case_Study_Report_NETHERLANDS.pdf.

Nowell, L. S. *et al.* (2017) 'Thematic Analysis: Striving to Meet the Trustworthiness Criteria', *International Journal of Qualitative Methods*, 16(1). doi: 10.1177/1609406917733847.

Owen, R. (2014) 'The UK Engineering and Physical Sciences Research Council's commitment to a framework for responsible innovation', *Journal of Responsible Innovation*, 1(1), pp. 113–117. doi: 10.1080/23299460.2014.882065.

Owen, R., Macnaghten, P. and Stilgoe, J. (2012) 'Responsible research and innovation: From science in society to science for society, with society', *Science and Public Policy*, 39(6), pp. 751–760. doi: 10.1093/scipol/scs093.

Peters, M. (2019) *Universiteiten, focus meer op het algemeen belang*, *Rathenau Instituut*. Available at: https://www.rathenau.nl/nl/vitale-kennisecosystemen/universiteiten-focus-meer-op-het-algemeen-belang.

Rathenau Institute (2021) 'The Dutch knowledge infrastructure'. Available at: https://www.rathenau.nl/en/science-figures/policy-and-structure/infrastructure-knowledge/dutch-knowledge-infrastructure-0.

ScienceGuide (2016) 'NWO heeft ramen en deuren opengezet'.

ScienceGuide (2017) 'NWO krijgt grotere rol bij topsectoren'.

Stichting Wageningen Research (2018) 'Management and administration regulations'. doi: 10.1136/bmj.305.6851.454.

Stilgoe, J., Owen, R. and Macnaghten, P. (2013) 'Developing a framework for responsible innovation', *Research Policy*. Elsevier B.V., 42(9), pp. 1568–1580. doi: 10.1016/j.respol.2013.05.008.

Street, J. *et al.* (2014) 'The use of citizens' juries in health policy decision-making: A systematic review', *Social Science and Medicine*. Elsevier Ltd, 109, pp. 1–9. doi: 10.1016/j.socscimed.2014.03.005.

The Jester (2020) 'How to impress that Unilever Hottie!'

The Jester (2021) *Report on private sector collaborations*.

The Jester (no date) *About*.

UNESCO (no date) *Science for Society*. Available at: https://en.unesco.org/themes/science-society#:~:text=Science generates solutions for everyday,most important channels of knowledge.&text=Science%2C technology and innovation must,more equitable and sustainable development.

Wageningen University & Research (2019) *Finding Answers Together - Strategic Plan 2019-2022*.

Wageningen University & Research (2021a) 'Juridische- en organisatiestructuur Wageningen University & Research', pp. 1–3. Available at: https://www.wur.nl/web/file?uuid=047ceba3-fb4f-4712-ba9f-a410d56b5a0e&owner=497277b7-cdf0-4852-b124-6b45db364d72&contentid=491780.

Wageningen University & Research (2021b) '"We need companies in order to make an impact in practice"'".

Wageningen University & Research (no date a) *Facts and Figures*. Available at: https://www.wur.nl/en/wageningen-university/About-Wageningen-University/Facts-and-figures-1.htm.

Wageningen University & Research (no date b) 'Historie van Wageningen University &

Research'. Available at: http://www.wageningenur.nl/nl/Over-Wageningen-UR/Historie-van-Wageningen-UR.htm#.

Wageningen University & Research (no date c) 'Independence research - Finding Answers Together'. Available at: https://www.wur.nl/en/About-WUR/Finding-Answers-Together.htm.

Wakeford, T. (2002) 'Citizens Juries: A radical alternative for social research', *Social Research Update*, (37).

Wet op het hoger onderwijs en wetenschappelijk onderzoek (2022). Available at: https://wetten.overheid.nl/BWBR0005682/2022-05-01 (Accessed: 16 May 2022).

Winkel, A. (2020) 'Wageningen Campus is veranderd in een bouwplaats', *De Gelderlander*, 4 November. Available at: https://www.gelderlander.nl/wageningen/wageningen-campus-is-veranderd-in-een-bouwplaats~aad6b122/.

de Winter, S. (2020) 'Wageningen Universiteit in opspraak "Resultaten belangrijk onderzoek over biologische voeding zijn onder druk afgezwakt"', *De Gelderlander*.

World Economic Forum (2017) *Global Competitiveness Index*, *Global Competitiveness Report*. Available at: http://reports.weforum.org/global-competitiveness-index/country-profiles/#economy=COL.

World Economic Forum (2019) *The Global Competitiveness Report*.

Zegers, L. (2020) 'Studenten van Extinction Rebellion lijmen zichzelf vast aan Forum', *Resource*. Available at: https://www.resource-online.nl/index.php/2020/11/02/studenten-van-extinction-rebellion-lijmen-zichzelf-vast-aan-forum/.

Zembla (2020) 'Het Kippenexperiment'. BNNVARA. Available at: https://www.bnnvara.nl/zembla/videos/551936.