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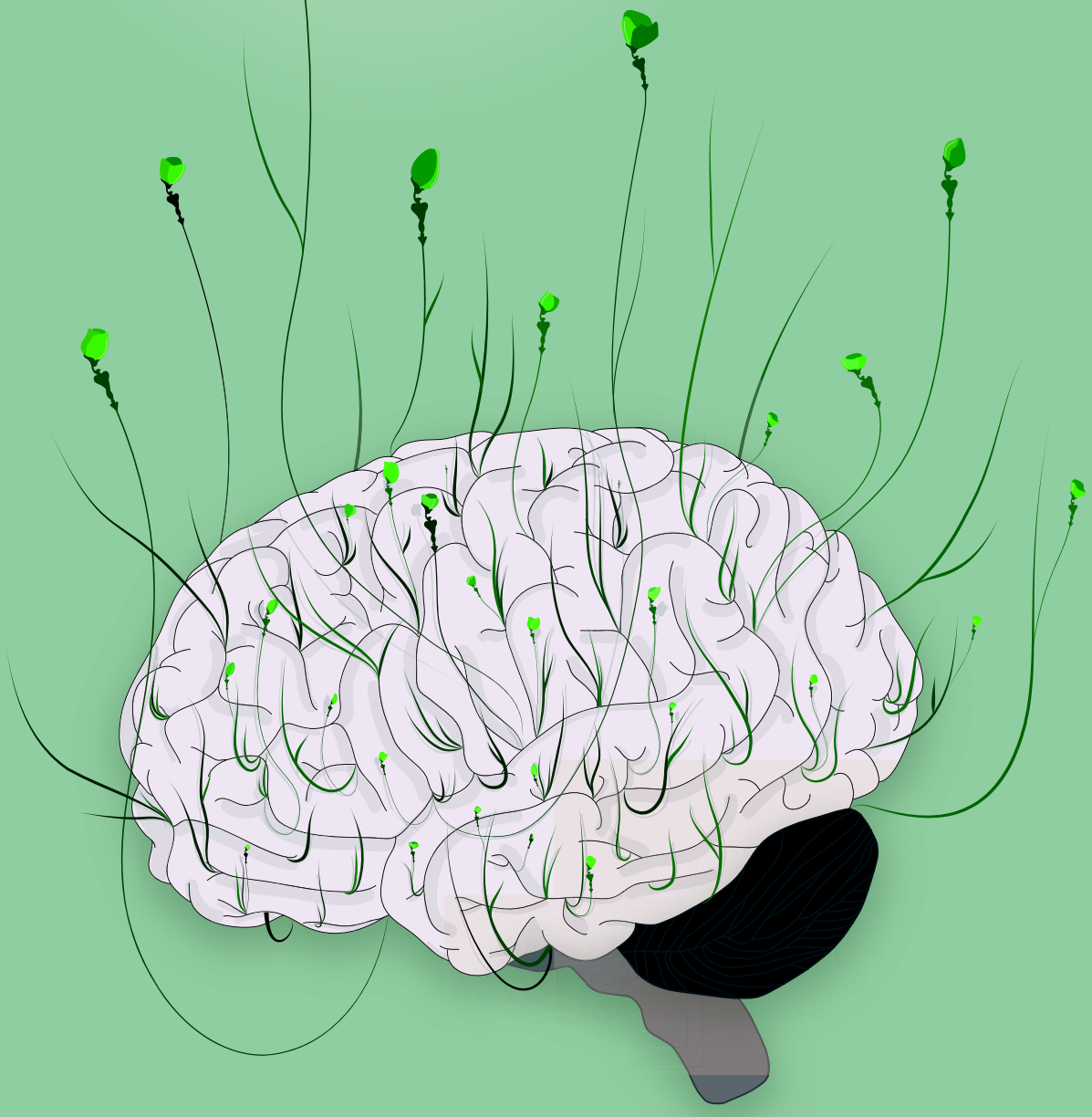

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Climate Change and Paying Lipservice to Women:

What is the Role and Representation of Gender in the COP21 Negotiations?

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Abstract

The gathering of global leaders to discuss climate change, known as COP21, in Paris in 2015 has been trumpeted as a success due to the high number of countries that have positively participated. COP21, or the Conference of Parties, is the governing body for the United Nations Framework Convention on Climate Change (UNFCCC), an environmental treaty aiming to tackle the problems associated with greenhouse gases. However, there are post-COP21 reports suggesting that despite 123 out of 195 countries so far agreeing to a set of policies to curb climate change, many important elements of the conference were not given the platform promised to them, including gender issues. Indeed, there are significant voices that say gender was strategically marginalised. Yet, prior to Paris in 2015, the COP21 president, French foreign affairs minister Laurent Fabius, claimed gender would be central to the negotiations. This was an acknowledgement that the impacts of climate change are overall more disadvantageous to women and girls. The purpose of the research is to examine the scope and importance of gender in the negotiations through a review of documentation and qualitative content analysis of newspaper articles.

I. Introduction

The Conference of Parties, or COP sessions, are the international political response to climate change. The sessions started at the Rio Earth Summit in 1992, where the 'Rio Convention' included the adoption of the UN Framework Convention on Climate Change (UNFCCC). This convention set out a framework for action to curb the acceleration of greenhouse gases (GHGs) into the atmosphere, a major cause of climate change. The UNFCCC entered into force on 21 March 1994, and now has a membership of 195 countries, or parties as they are known at the COP gatherings. At each session policy regarding the sources of GHGs, including fossil fuels, are discussed and adopted. The UNFCCC claimed that COP21 was a historic agreement, and UN Secretary General Ban Ki-moon hailed it a resounding success (UNFCCC, 2015). However, there have been many female voices challenging its claims, especially in the area of women's rights, and their inclusion in climate change policy and strategy (Bowser, 2015). Despite calls by academics for more research exploring gender and climate change (Alston, 2014) (MacGregor, 2009), at the time of writing there are no academic papers examining COP21 through a gender lens, and just one NGO report reviewing how gender was represented during the negotiations (Huyer, 2016). In the absence of academic research, I will conduct a review of documentation and official reports. Therefore, I will examine newspaper reports from COP21 as these dispatches arguably give insight, through a content analysis, into the delegate's levels of commitment to gender-related climate change issues. While

newspaper articles do not completely 'mirror' events as they are a product from a journalist that is subject to various influences that need to be taken into account, they do offer an understanding of larger society (Riff, et al. 2014 p9).This study intends to explore COP21 from a feminist perspective, especially in consideration of the fact that Laurent Fabius, the French foreign affairs minister and head of the conference in Paris 2015, drew attention to the gender imbalance of climate change prior to the negotiations in an interview with the French radio station RFI: "Women must be placed at the heart of national and local climate strategies and at the heart of international climate negotiations. As the future president of COP21 in Paris, I will ensure this. The climate battle must be fought for, and with, women." (Fabius). 2015).Yet, such issues received little attention during the negotiations, evidenced in what can be described as minimal references to gender in the International Institute for Sustainable Development (IISD) daily reports. A review of the IISD daily roundups of COP21 reveals that gender is discussed only four times over the 10 days (See Table 1 in Appendix 1). Within this paper I explore the theories that contribute to the understanding of the issues surrounding gender-specific climate change problems, including the system of patriarchy, as defined by feminists, that presents barriers to decision-making and policy formation. It is important to note here that while there were talks on gender, and the hosting of a Gender Day, this study draws a difference between these events and the inclusion of women's issues in the actual negotiations, as it is the final text of the Paris Agreement that will decide the actions of those countries that adopt it.

I.I Background to gender and climate change impacts

Fabius' claims that women are disproportionally impacted by climate change are in line with reports from a number of organisations concerned with the problems associated with a warming planet, including the World Health Organisation, among others. A 2015 WHO report states that many of the health risks that are likely to be affected by ongoing climate change show gender differentials. It adds that globally, disasters such as droughts, floods and storms kill more women than men, and tend to kill women at a younger age. WHO also claims that gender-gaps have effects on life expectancy, and tend to be greater in more severe disasters, and in places where the socioeconomic status of women is particularly low (World Health Organisation 2015). These increased disadvantages of climate change extend to the issue of women's control over their bodies and reproductive rights. Reports have shown that climate change can impact upon women's personal safety. This can range from increased likelihood of rape and attack during, and following, a disaster, as reported in New Orleans post Hurricane Katrina (Thornton, et al. 2007), to the migration of women from rural areas leading to exposure to sexual exploitation through prostitution (Kyle, et al. 2011). Population control is often cited as a means by which to mitigate climate change, and this has resulted in women in developing countries increasingly being denied decisions over their reproductive choices (Guillebaud, 2007). Not only does this have social and health impacts, it has been argued that population control diverts attention away from the real issue of over-consumption by the global south (Gaard, 2015). A 2006 review of the link between family planning in developing countries and environmental mitigation showed that there was little evidence of population control having a major impact upon reducing greenhouse gases, and that, especially in the cases of rural communities where family planning was linked to biodiversity goals, it led to women being coerced into accepting inadequate methods (Oldham, 2006).

I.II Background to the influence of media reporting on climate change

Research shows that women are under-represented not just in policy formulation, but also in the media discourse on climate change issues, with the majority of journalists still treating the problem as one that effects men and women equally (Sarwono, et al. 2012). Where gender perspectives are reported upon, there is evidence to suggest that women are portrayed as either vulnerable and incapable of determining their own solutions, or as the saviours of the planet, placing the burden of climate change prevention and mitigation upon their shoulders, often without the resources to carry out such tasks (Arora-Jonsson, 2011). The consequences of such journalism (relegating women to a 'niche' subject, and then assigning them distinct, and powerless, roles) upon how the public perceive gender and climate change cannot be underestimated. Boykoff, et al (2015) have pointed out that the general public do not read peer-reviewed papers on

climate change, but instead absorb such information from the mass media. A recent analysis of international media coverage of climate change from 2003 to 2013 revealed that skeptical reports were much higher in the United States and UK, which resulted in unusually high levels of skepticism in respondents in those countries as opposed to other nations (Capstick, et al. 2015). Furthermore, a study of Japanese media showed that an increased coverage of climate change on the front pages of its national newspapers, correlated with an increase in environmental concerns among the population (Sampei & Aoyagi-Usui. 2009).

II. The Role of Eco-feminism

The main body of work associated with gender and environmental issues is from the eco-feminist perspective, a movement that explores the links between women and environmental change, which gained traction at the start of the 1980s. The 1979 book Women and Nature, by feminist writer Susan Griffin, is widely cited as influencing the development of eco-feminism (e.g Spretnak, 1990). However, the movement, and academic interest, saw a decline in the 1990s due to it being viewed as 'spiritualist' and 'fluffy' and did not tackle the practical aspects of gender-specific climate problems (MacGregor, 2009). The publication of the 1991 book titled Rethinking Eco feminist Politics by Janet Biehl, also questioned the practicality of the movement. In the book, Biehl is particularly critical of the early eco-feminist movement's claims that women hold the exclusive role of developing caring and nurturing relationships with nature, with the implication that biology dictates an understanding of environmental issues, and creates concern for them (Biehl, 1991). Subsequently feminists such as Cecilia Jackson have treated eco-feminism with suspicion, accusing the movement of being 'essentialist', and the momentum of the group stalled, along with the development of theories and ideas associated with it, further limiting research on women and climate change (Gaard, 2011).

II.II The Role of the Media

Newspapers have historically tailored news to suit readerships (Conboy, et al. 2008). However, it has been suggested that contemporary reporting has downgraded its ability to question sources of information due to a lack of resources and expert knowledge (Conboy, et al. 1998). This suggests that newspaper content reflects not independent evaluation or even political bias by the reporters, but a mere repeating of information supplied by various official sources. Despite an extensive search through scholarly articles, there is little research on how gender and its relationship to climate change is discussed in the media. The main body of research into newspaper coverage of climate change is by Max Boykoff, an associate professor in the Center for Science and Technology Policy at Colorado University. Boykoff has not been concerned with the reporting of gender issues and climate change, which is disappointing but possibly to be expected given the gender bias within newspaper structures. The 2016 publication Media Meets Climate: The Global Challenge for Journalism (edited by Elisabeth Eide & Risto Kunelius) includes a study of how newspapers report upon climate change in relation to women. The chapter, Ignored Voices. The Victims, The Virtuous, The Agents Women and Climate Change Coverage, written by Billy Sarwono, Zarqa S. Ali & Elisabeth Eide finds that while the number of women journalists has increased, this does not guarantee that news coverage will become free of gender bias. Eide describes gender bias as the view of women, and the values and beliefs that they hold as members of the community, as being presented through the lens of a male dominated culture. Women then in turn absorb this, making it difficult to change the values that have been deemed acceptable by the society. Eide continues to argue that because of this, people follow deeply rooted traditions, even though some of these have negative impact on whole societies. With the added pressure of resource cuts and deadlines, journalists focus on the immediate work at hand rather than developing gender sensitive reporting (Sarwono, et al. 2016: p291).

III. Methodology

The methodology selected for the research is qualitative content analysis. The reason for doing so is that qualitative research is a strategy that places an emphasis on words rather than quantification in the collection and analysis of data (Bryman, 2012). It is also a method that is suitable for research where there is a limited amount of data (Bryman, 2012) as opposed to a quantitative method. The COP 21 conference took place in 2015 from November 30 to December 11, with a short timeframe of interest prior and post the event and even less interest in the subject of gender. Therefore, with 11 articles

available, the content of the articles, rather than quantity, is of more importance to the goal of the research.

III.I Review of COP 21 documentation.

I examined the draft and final text of the Paris Agreement in order to establish the level of commitment to gender issues in the COP21 negotiations. Clearly if gender was important to COP21, then it would play the central role that president of COP 21 Laurent Fabius claimed it would in statements to the media in the run-up to the conference. Yet, there is a suggestion significant action on gender issues did not translate into the final Paris Agreement. While climate negotiations have been taking place for over 20 years, COP21 was held up as a significant event within that timeframe as for the first time both poor and wealthy nations agreed to reduce emissions. It has been claimed that previous UN climate change conferences followed a top-down approach, instead of bottom-up, and some attendees were unsatisfied with the terms and conditions. This greater involvement of developing countries in COP21 is to be applauded, but from a gender perspective many activists have also attributed this to the lack of willingness for greater representation of women in the agreement, especially as in many countries, such as India and Mexico, the agreement needs to have the consent of a male dominated parliament before it can be ratified. Therefore, one could argue that the function of gender within the COP21 negotiations is that of a trading card, a means by which the UNFCCC can bargain with countries in order to secure their commitment to the overall Paris Agreement. According to a draft text of what could potentially have been included in the Paris Agreement, released by the UNFCCC in July 2015 in a paper entitled Scenario Note on the tenth part of the second session of the Ad Hoc Working Group on the Durban Platform for Enhanced Action, Note by the Co-Chairs, there were at least six paragraphs in the main body of text that signaled a greater involvement of gender, yet never made it into the final document. The final Paris Agreement has only three mentions of gender. (Please see Appendix 2 for details). The distance between the UNFCCC's intention and actual application by countries involved in the negotiations can be measured in the submissions for the Intended Nationally Determined Contributions (INDCs). In preparation for COP 21, countries (or parties as they are referred to in UNFCCC text) agreed to publicly explain in the form of documentation what post-2020 climate actions they intend to take under a new international agreement – the INDCs. A review by the organization Climate Change, Agriculture and Food Security (CCAFS), of the INDCs submitted by 160 Parties indicates that attention to gender and other social issues is less than might be expected. According to CCAFS, gender receives attention from less than half the parties, 57 in total, none of whom are industrialised countries. Gender references are confined mostly to impacts of climate change on women, and women as "vulnerable populations", with less emphasis on supporting women to actively address and participate in adaptation and mitigation actions. (Huyer, 2016). References to gender in areas where women play a substantial role – water, agriculture, environmental and natural resource management, energy, and health – are extremely low. Despite the high recognition of the importance of agriculture by almost all parties (131), only 10 parties mention the role of women in agriculture and food security, with very few references also made to women and gender in relation to water (4 parties), energy (6 parties), and health (6 parties). Only 20 parties make references to the integration of gender into national climate change policy and strategy. Three countries make reference to Gender and Climate Change Action Plans: Jordan, Liberia and Peru (Huyer, 2016).

III.II Newspaper Data Collection

An archival search for newspaper reports on COP 21 was conducted through LexisNexis database accessed through VU University library. I also searched for articles through the search engines of the news websites for the New York Times, The Dallas Morning News, The Washington Post, The Telegraph and The Times. In total, I reviewed 11 newspaper articles. (Please see Appendix 3 for a complete list.)

IV. Results

IV.I Vulnerability/Virtue

The word 'vulnerable' was used at least once in each of the articles, and overall appeared 15 times. This corresponded with data from the 2011 paper Virtue and vulnerability: Discourses on women, gender and climate change, in which the author Arora-Jonsson claims that in the limited literature at the time of writing on women and climate change two themes dominated, that of vulnerability, and virtue. Words associated with

vulnerability were actually used infrequently, 'victims' only five times and 'weak' used only once throughout the data set. However, these words were often used in relation to women's position in the pecking order of demographic groups experiencing disadvantageous conditions caused by climate change. In the article printed in the Qatar Tribune entitled Taking Climate Action for, and with, Women (8/03/2015) president of COP 21 Laurent Fabius claims that women are the "primary victims of climate change." The Gulf Times article, From the front lines of climate change (08/05/2016) states that: "And it will be the most vulnerable people - rural women, the sick, the old and the very young - who are most at risk." The Indian News International in an article titled Women Empowerment Stressed (23/02/2016) quoted Major General Asghar Nawaz, chairman of the National Disaster Management Authority, as saying that "Women are disproportionately vulnerable to the effects of natural disasters and climate change". In terms of references to virtue, this translates into a repeated portrayal of woman as selfless in their efforts to fight climate change. In the Singapore Straits profile of Christiana Figueres, UN climate chief close to finish line; Paris talks will seal global pact she has worked towards for years (date), it is mentioned ten times how hard she works with sentences such as "Through it all, Ms Figueres has kept up a punishing schedule." And "one of the hardest-working people". Words used in conjunction with her carrying out her role include drive, tirelessly, and marathon effort. In The Guardian's Women and climate change justice: thoughts from the Paris talks (10/12/2015) the poet Filipino-American Isabella Avila Borgeson describes how she travelled to the Philippines post Typhoon Haiyan "I meant to stay for three months to help the community, and I stayed for over a year." The other means of conveying the virtuousness of women in relation to climate change is their role in preventing and mitigating the impacts of a warming planet. In The Qatar article Fabious talks of how "women are also often the main source of solutions" and that "a program designed without taking women into account is less effective than the same programme planned with them.".

IV.II Leadership

Another distinct theme that comes through is that of leadership, and moreover how women make better leaders than men but are prevented from attaining these positions through patriarchy. In the New York Times' article A Parade of Clichés (12/12/2015), the writer comments on how there are a lot of men, as opposed to a few women, giving speeches at the Cop 21 conference but that they "became increasingly predictable, even formulaic" and then quotes the American activist Rebecca Solnit, who popularized the term 'mansplaining' as saying the collective speeches did not amount to much: "What makes me crazy is that Obama and Putin are talking about 2005 levels, and the European Union is talking about 1990 levels…it's like gaining 100 pounds and then boasting that you're losing 50". The whole tone of the article is that the male leaders are ineffective, and although they are making speeches, the words amount to very little. In The Herald article, Climate Change Debate Must Transcend 'Fine Dining' (13/06/2016) the writer Ruth Butaumocho also raises the issue of a lack of women's leadership where it would potentially make a difference: "It boggles the mind that women's involvement in debate around climate change has remained peripheral, especially on policy issues, when they should be at the forefront in advocating for what works for them and deciding how they want policies formulated."

IV.III Access to power

Although the actual word 'power' is used only five times in the data set, there are many references to women's inability to direct or influence behavior to their benefit. Former Irish president, and now climate campaigner, Mary Robinson comments in The Guardian article Cop21 is too male dominated and has male priorities (08/12/2015) that some women had been excluded from the talks after being denied official passes to gain entry into the high security compound. There are also references to exclusion from legitimate power or 'positional' power, essentially an inability to access officialdom. In the New York Times article A Parade of Clichés (30/11/2015), there are two references to the dominance of men and the lack of women involved with the conference, "But there were certainly a lot of men", and "The few female speakers". In The Guardian's Women and climate change justice: thoughts from the Paris talks (10/12/2015) Tarja Halonen, the former president of Finland, states that women are "under-represented and underestimated" in relation to climate change. Helen Hakena, director of Leitana Nehan Women's Development Agency, speaks of working with women in the Cartaret Islands,

that are "tired of waiting for the government's relocation programme". Unable to influence the official sources, they leave the sinking islands and are caught in a cycle of poverty and spousal abuse. In the same article there are also examples of where women cannot access 'reward' power, in the form of post-disaster or prevention projects, especially if they are based on construction jobs, as outlined by the poet Isabella Avila Borgeson who describes how after the 2013 Typhoon Haiyan in the Philippines many of the livelihood projects left women that had lost husbands out of the reconstruction conversations. Winnie Byanyima says: "Only a trickle of governmental money reaches the household and when it gets there it may be taken by the head of the household." This lack of access to economic power, and associated ability to make decisions, because it is either withheld by government agents or husbands is again raised in the article. Usha Nair, from the All India Women's Conference, speaks of "the man might have a final say in the house", while Victoria Tauli-Corpuz adds that indigenous people have "Some anti-women traditions, like inheritance laws or male governance systems." One of the strongest voices claiming a lack of gender inclusiveness at COP21 is Mary Robinson. Not only is she the protagonist in The Guardian article Cop21 is too male dominated and has male priorities (08/12/2015) she also alleges that some countries are trying to further weaken the position of women in the Paris Agreement through opposition to inclusion in the text. "Some countries are understood to be opposed to including language on gender equality in the text, including middle eastern countries." This is an accusation she repeats in The Guardian's piece Women and climate change justice: thoughts from the Paris talks (10/12/2015), "Some countries seem to want a narrow environmental agenda, like Norway. We need to keep gender in the text, as it's necessary for good climate policy."

V. Discussion

The research sought to examine what the role and representation of gender was within the COP21 negotiations, in order to understand the implications for future female involvement in climate change policy formulation. The available literature and data supports the view that while gender was talked about as a priority prior to COP21, during the negotiations and in the final agreement it was relegated to a niche issue. This fits with the on-going eco-feminist argument that male-dominated institutions, even when they claim to want to include female perspectives, are too entrenched in patriarchal systems and culture to respond to gender needs (Gaard, 2015). Throughout this research process, both in the literature review and in the analysing of the data, there has been the recurring theme of women's unequal access to power, which in turn has resulted in a limited role within the shaping of climate change policies whether on a local or international stage. While there is a high level of acknowledgment within the UNFCCCC that climate change is more disadvantageous for women, as evidenced in draft text for the Paris Agreement, and numerous reports and text undertaken at previous COP gatherings, movement to act on this issue is slow. As Alston (2014) points out, policy that does not take into account a gender perspective can actually continue the cycle of gender inequality, and there are several examples of this taking place given in the newspaper articles, including the account by Isabella Avila Borgeson in the Guardian article Women and climate change justice: thoughts from the Paris talks (10/12/2015) where she states that post-relief construction policy following the Super Typhoon Haiyan in 2013 was centred around men, which left women who had been widowed by the disaster out of the conversations on how their homes should be re-built.

Therefore, when one asks the question, What is the role and representation of gender in the COP21 climate negotiations? one must take into account the disparity between the impassioned promises and the reality of what was delivered, which amounted to very little (Huyer, 2016). It is the climate justice campaigner Mary Robinson who offers one answer to the question when she speaks of the opposition from countries to the inclusion of gender in the final text. She further spells it out in an interview with the news website Democracy Now when she draws attention to the "negotiations going on", and with her admission that gender was a potential bargaining chip. There is certainly room to suggest that gender, along with human and indigenous people's rights, was used as a form of trade-off in order for the UNFCCC committee to secure the agreement of countries such as Saudi Arabia. However, the themes that have emerged from the data point to a wider role of gender than just as a negotiation strategy, and that is of a smokescreen that masks the deeper issues that are not being addressed within the climate change arena, and that is the continued support of the mechanisms by

which power is concentrated in the hands of male actors, from the education system to the media industry. This is where the philosopher Foucault's (1980) theory of power comes into play, the 'regimes of truth' he speaks of that are pervasive and reinforced by social institutions through the language used in communications, that lead to people, in this case women, not only being oppressed, but playing a part in that oppression. An example of this is where women interviewed in the COP21 newspaper articles refer to their gender as being 'vulnerable' and 'weak'. Arora-Jonsson (2011) argues that by continuing to apply language that is associated with victimhood and vulnerability to descriptions of women in relation to climate change, it disempowers and ignores women's capacity for equal involvement in the decision making processes. Where women are in visible positions of power, or have attained some form of leadership, they are cloaked in language that marks them out as somehow savior-like, or as possessing 'virtue' as Arora-Jonsson (2011) describes it. This too is counter-productive as it suggests that only 'special' women can attain such status, and once again ignores the systems that prevent many women, especially those in the global south, of progressing to a place where they too can fulfil their capacity. Of course, this data is small and is limited to English-language reports. Therefore, it is perfectly reasonable to suggest that there could be more incisive reporting on gender and COP21 in non-English newspapers. In order to have more thorough research into the media discourse on gender and COP 21 it would be beneficial to carry out a collaborative project with researchers of different nationalities. While in recent years the issues surrounding women and climate change have gained more attention, this is not significant when compared to how much discussion is given to topics such as carbon markets, and other mitigation strategies within academic research. This lack of research is a limitation for this study, but it is also an opportunity for the academic community to take on the challenge of raising awareness of this deeply important issue.

VI. Conclusion

The consequences of ignoring the needs and the talents of half the population when it comes to prevention, mitigation and adaptation in climate change are immeasurable. By only telling half the story, the world is missing out on half the potential answers for facing up to this enormous challenge. As feminist writers have long argued, patriarchy not only oppresses women but the population as a whole, with men also denied the means by which to help secure a harmonious future. As this research has shown to a certain extent, the real issue that is not being tackled adequately is that of access to power, and until this situation is addressed, then the Paris Agreement, and any climate change strategies to come, will be steeped in difficulties. However, recent events have given rise to hope, with the organising of the Women's March on January 21st as a response to the election of President Donald Trump. Despite the danger that President Trump poses to both climate change and women's rights, if the outcome of the Women's March is that women stop asking, and start demanding, for their inclusion in the design and implementation of policies that impact upon them, then there is a potential for significant future changes in the balance of power.

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VIII. Appendix I

Date	Reference	Page and Paragraph
Tuesday, December 1	Stating that women are both victims of, and part of the solution to, climate change, President Michelle Bachelet, Chile, stressed the need for countries to seek inclusion of gender to ensure climate justice.	P2:P20
Tuesday, December 8	Others worried that the focus on quantitative goals risked overshadowing other, important qualitative guiding lights such as decarbonization, net-zero, indigenous peoples' rights, humanrights and gender equality.	P1:P20
Wednesday, December 9	On preamble, general and objective, Guatemala, for AILAC, with NORWAY, said the agreement should include references to gender issues, intergenerational matters and, with CHILE, the PHILIPPINES and MEXICO, human rights. VIET NAM and MEXICO called for including gender equality.	P2:P08 P2:P10
Wednesday, December 9	Report on a workshop on being more genderresponsive.	P2:P12

IX. Appendix II

Recommendations in the Scenario Note on the tenth part of the second session of the Ad Hoc Working Group on the Durban Platform for Enhanced Action, Note by the Co-Chairs:

Section on Potential Draft Decision, under National Adaptation Planning Processes, "All Parties shall involve, and facilitate the participation of, relevant stakeholders in adaptation planning, decision-making and monitoring and evaluation processes, in particular women and indigenous peoples" (Section 13, paragraph 2). There were no brackets around this paragraph, which signal opposition to a particular portion of a text or alternative proposals or terms. Please see Annex 1 for the further five paragraphs.

Under the Guidance For Individual Efforts (Section 14, paragraph m), it states efforts should be "Be country-driven, gender-sensitive, [community-based,] participatory and fully transparent, take into account vulnerable groups (women and children) and preserving ecosystems." And in the Guidance For Country-Driven Processes And Proposals there is a call for such processes to be gender-sensitive (Section 16). In the section Possible Elements On Pre-2020 Ambition, paragraph 74 there is text suggesting that the Paris Agreement "[Provide meaningful and regular opportunities for the effective engagement of experts from Parties, relevant international organizations, civil society, indigenous peoples, women, youth, academic institutions, the private sector, and subnational authorities nominated by their respective countries;]. However, this is in brackets, and red font, which denotes where additional words or modifications of words have been used. In the third section of the document, titled Provisions whose placement requires further clarity among Parties in relation to the draft agreement or draft decision, under the heading of General Principles, there is a call for "[All Parties shall ensure: Gender equality and the full and equal participation of women in all climate actions and decision- making processes…]" Under section 72.2, Addressing Barriers By Developing Countries, it states, without brackets or red font, that to undertake steps to address barriers to technology that governments encourage a self-determination approach

that would enable women to access technology "according to their needs and capacities, so as to be able to build and develop their own technological base." Finally, under the Equality, Environmental Integrity And Rights, section it states: "[[Stressing][Acknowledging] [that [Parties in] all actions to address climate change [and all the processes established under this agreement] should ensure [a gender-responsive approach] [gender equality and intergenerational equity].".

Reference to gender in the final Paris Agreement text:

The first is in the pre-amble, which is not binding, "Acknowledging that climate change is a common concern of humankind. Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights… as well as gender equality, empowerment of women and intergenerational equity." The second is on article 7 about Adaptation: "Parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach…. where appropriate." Then on article 11.2 about capacity building: "Capacity-building should be country-driven, based on and responsive to national needs, ….and gender-responsive."

X. Appendix III

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Adaptation in Global Climate Governance:

Linkages between Intergovernmental Dialogue Forums and the UNFCCC Regarding Adaptation

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Abstract

This paper investigates how intergovernmental dialogue forums addressing climate change outside of the UNFCCC are linked with the UNFCCC regarding their statements on adaptation. The discussed forums are the Major Economies Forum, G8, and G20. Three analytical points of comparison concerning the UNFCCC are established, namely: the UNFCCC gives adaptation the same priority as mitigation; there is increasing attention for the role of transnational actors in adaptation; and there is a clear distinction between the roles of developing and developed countries. A qualitative content analysis of forums' documents was conducted to investigate the nature of the linkages between statements related to adaptation. The key conclusion is that there is much overlap regarding adaptation statements between the dialogue forums and the UNFCCC, but there could be complementarity as regards certain adaptation subjects about which the forums made statements prior to the UNFCCC.

Keywords: UNFCCC; intergovernmental forums; climate change adaptation; global governance; institutional fragmentation.

I. Introduction

Climate change has been increasingly addressed in international institutions over the last few decades. The overall focus of international negotiations and discussions has been primarily on mitigating the anthropogenic impact, mainly through reducing and offsetting greenhouse gas emissions to such an extent that atmospheric concentrations would stabilise "at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC, 1992: 4). However, since the constitution of the United Nations Framework Convention on Climate Change (UNFCCC) established an international platform to address climate change, other aspects of climate change have been addressed progressively. One example is human adaptation to climate change effects on livelihoods. Although the UNFCCC is arguably considered as the main international platform for climate policy, other international institutions have been created by national governments to discuss climate change. The reasons to create new platforms outside of the UNFCCC vary, but the gridlock in climate negotiations in the period between the Kyoto Protocol and the Paris Agreement is a possible explanation for many (Keohane & Victor, 2011: 10). This gridlock can be largely attributed to the discussion about which countries should reduce emissions to what extent. New intergovernmental dialogue fo-

rums on climate (Weischer et al., 2012) therefore mainly address mitigation. The question arises, then, if and how these political dialogue forums discuss adaptation too, considering that the UNFCCC's Conference of the Parties has agreed to consider adaptation as important as mitigation (UNFCCC, 2011: 3). Concomitantly, it is useful to investigate whether there is a notable link between these dialogue forums and the UNFCCC regarding adaptation, as this could provide insights on, for instance, degrees of complementarity or overlap. This paper therefore addresses how intergovernmental dialogue forums, outside of the UNFCCC context, are linked to the UNFCCC with regards to their statements on adaptation. The term intergovernmental is used to indicate a restriction of this research to international institutions that involve national governments, thereby excluding transnational institutions. The intergovernmental institutions that are analysed are the Major Economies Forum on Energy and Climate (MEF), the G8, and the G20, as these institutions have been discussed as having similar purposes or functions in two separate articles addressing climate policy (Keohane & Victor, 2011 ; Weischer et al., 2012: 182). This allows for a robust comparison. The following section briefly discusses how adaptation is addressed within the UNFCCC in order to create a point of reference for the comparison with statements of other climate forums on adaptation. Subsequently, this paper addresses the academic debate on international climate change governance, including notions of climate regime complexes, climate clubs, and fragmentation. Then, based on the discussed literature, an analytical framework is presented, including the methodology, which is used to analyse the data of the several intergovernmental institutions. Lastly, key insights are discussed, considering also the limitations of this paper, after which a conclusion is given.

II. Literature review

II.I Adaptation in the UNFCCC

Adaptation was included in the original UNFCCC founding document when parties committed to formulate and update programmes containing "measures to facilitate adequate adaptation to climate change" (UNFCCC, 1992: 5), as well as to "cooperate in preparing for adaptation" (ibid.). It was emphasised that developed countries shall assist vulnerable developing countries in "meeting costs of adaptation to […] adverse effects [of climate change]" (idem: 8). The programmes containing adaptation measures were further defined in the Kyoto Protocol as including "adaptation technologies and methods for improving spatial planning" which would advance adaptation (United Nations, 1998: 9). The Kyoto Protocol also established the clean development mechanism (CDM), of which a share of the proceeds would be used to assist developing countries in meeting adaptation costs (idem: 12). This 'share' was later, at the Sixth Conference of the Parties (COP6) in 2001, set as comprising a two per cent levy on CDM projects (Paavola & Adger, 2006). At the following COP7, a Least Developed Countries (LDC) work programme was established with special consideration for adaptation efforts in LDCs. Under this programme, a fund was established for LDCs (LDCF), which would provide additional adaptation finances next to the CDM levy, as well as an expert group (LEG) that could provide technical assistance (UNFCCC, 2013). This expert group would later be complemented by the Nairobi work programme aimed at facilitating adaptation knowledge and information (UNFCCC, 2012), as well as by the Adaptation Committee (AC), established through the Cancun Adaptation Framework in 2010. This AC focuses mainly on the actual implementation of adaptation policies (UNFCCC, 2014). Another decision related to the LDC programme was the establishment of the national adaptation programmes of action (NAPA), which are strategies that national governments have to base on existing knowledge and existing grassroots projects to address the most urgent areas where short-term adaptation is required. The aforementioned Cancun Adaptation Framework (CAF) established new principles for adaptation in the UNFCCC. For instance, as mentioned in the introduction, adaptation was now to be addressed with the same priority as mitigation (UNFCCC, 2011: 3). Also, adaptation for LDCs no longer only involved short-term actions, but also medium- and long-term programmes in the form of national adaptation programmes (NAPs; cf. NAPAs) (idem: 5). Related to this was a call for integration of adaptation practices into general national policies. Besides, the need to involve more stakeholders from both national and transnational levels in adaptation policies was recognised (idem: 3-4), which implies a shift away from full governmental responsibility for adaptation. Finally, most of the CAF's principles were included in the Paris Agreement, with the addition of urging countries to "submit and update periodically an adaptation communication" (UNFCCC,

2015: 26). In sum, the UNFCCC framework now includes an extensive and complex framework emphasising the importance of adaptation. It comprises multiple institutions such as the CAF, AC, LDCF and LEG, and involves the active participation of all parties to the UNFCCC in addressing adaptation to climate change, either through support to vulnerable countries or through formulating and implementing adaptation plans. Interestingly, the notion of adaptation in the UNFCCC has been extended to include features that fall outside of the 'international climate' context, such as the involvement of non-governmental actors in adaptation and the integration of adaptation in national policies that are not necessarily aimed at combating climate change.

II.II International Climate Governance: Fragmentation, Regime Complexes, and Climate Clubs

As aforementioned, there are many international institutions involved in global climate governance. This presence of many varying institutions within one policy area can be regarded as fragmentation, describing "a patchwork of international institutions that are different in their character [...], their constituencies [...], their spatial scope [...], and their subject matter" (Biermann et al., 2009a: 16). Indeed, Zelli (2011: 255) argues that "global climate politics is characterized by an advanced state of institutional diversity". He states that global climate governance is not restricted to institutions that specifically address climate change, but also involves institutions focusing on other subjects (idem: 256). According to him, there are four spheres in global climate governance with possible influences on global climate policies, with the central sphere being the UN climate regime (mainly consisting of the UNFCCC and all its related institutions). The second sphere includes multilateral forums (institutions) on climate and energy; the third sphere comprises international environmental institutions mainly concerned with other environmental issues than climate; and the fourth sphere consists of international non-environmental institutions (Figure 1). Although this depiction of institutional diversity or the term fragmentation in general may imply a preference for centrality (Zelli & Van Asselt, 2013: 3), fragmentation is not necessarily undesirable. Keohane & Victor (2011) argue that global climate policy consists of many international institutions, which they call 'regimes', and that regime complexes, characterised by loosely coupled regimes with an absence of an overall architecture, "have some distinctive advantages over integrated, comprehensive regimes" (idem: 19), such as flexibility across issues and adaptability over time in policymaking processes. They continue to argue that the UN endeavours to make the UNFCCC a comprehensive regime, whilst it

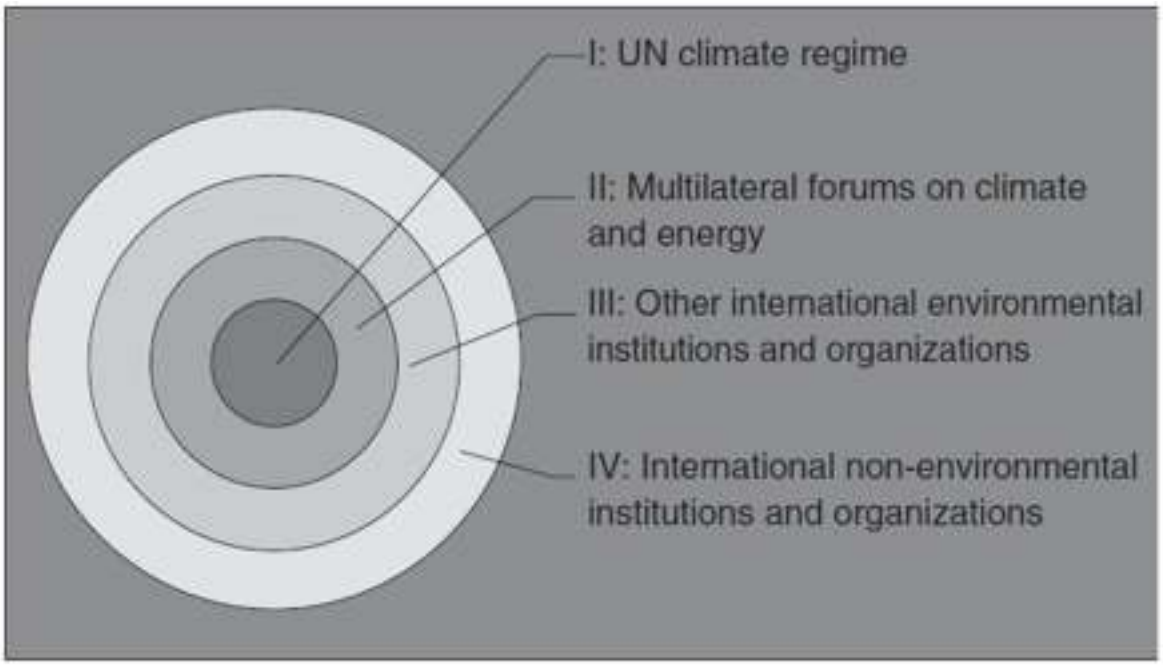

Figure 1. Spheres of institutional fragmentation in global climate governance (from Zelli, 2011). (Reprinted with permission from Zelli, 2011, p. 258, and Biermann et al., 2009b, p. 270. Copyright 2010 Cambridge University Press)

might be more beneficial to make the best out of the contemporary situation characterised by a high degree of fragmentation, because one overarching regime is highly unfeasible and not necessarily better in dealing with the issue at hand. Still, Keohane & Victor remain wary of promoting more fragmentation, as a regime complex also has liabilities such as higher transaction costs and possible conflicting overlaps between different institutions. The authors offer six criteria to assess a regime complex for functionality: coherence, accountability, determinacy, sustainability, epistemic quality, and fairness (idem: 16-17). Weischer and colleagues (2012) also imply that a diversity of multilateral institutions may be useful for increasing ambitions in climate change policies, specifically regarding mitigation. They address intergovernmental institutions which they refer to as 'climate clubs', which are "any grouping that comprises more than two and less than the full multilateral set of countries party to the UNFCCC and that has not reached the degree of institutionalization of an international organization" (idem: 177). Weischer and colleagues make a distinction between 'dialogue forums' and 'implementation groups', and define the primary purpose of dialogue forums as "information exchange and understanding country positions more deeply" (idem: 180, 182). Indeed, they argue that these forums may enable a better understanding of a country's positions and interests by other countries; may facilitate the sharing of best practices; and may support mitigation strategies. However, they conclude that current climate clubs do not trigger more ambition due to a lack of proper incentives to "turn ideas into declarations and actions plans into real action" (idem: 184). Keohane & Victor (2011) regard the MEF, G8, and G20 as climate clubs; Weischer and colleagues go further to distinguish them from other climate clubs as political dialogue forums. The MEF is regarded here as a Sphere II forum (see Figure 1; Zelli 2011), the other two as non-environmental forums (Sphere IV). Although Weischer and colleagues largely discuss these forums as addressing mitigation when referring to climate change, these forums also produce statements on adaptation. It is therefore relevant to see whether these statements could be regarded as, for instance, inspiring more ambition regarding adaptation.

III. Analytical Framework and Methodology

Based on the discussed literature and the highlighted adaptation activities within the UNFCCC, an analytical framework is established to investigate how intergovernmental dialogue forums are linked to the UNFCCC framework regarding their statements on adaptation. To this end, the UNFCCC is used as a point of reference to compare the other institutions with. Important aspects of comparison of UNFCCC statements regarding adaptation include: 1) adaptation is now given similar priority as mitigation; 2) there is increasing attention for non-state actors; and 3) concerning adaptation there still is a clear distinction between tasks of developed and developing countries, essentially meaning that developed countries have to assist developing countries in their formulation and implementation of required adaptation plans.

Although most of the discussed literature focuses on mitigation institutions in non-UNFCCC climate forums, the theoretical notions regarding these forums can also be used to discuss their efforts in addressing adaptation as the theories deal with their institutional characteristics and setting. The most important point to take from the discussed literature is that these intergovernmental climate forums can function variously in relation to the UNFCCC. For instance, it was argued that the positions and interests of countries regarding the subject at hand could be clarified in these forums. This would be beneficial for UNFCCC negotiations. More profoundly, according to Keohane & Victor (2011) the functionality of the regime complex, of which the UNFCCC is part, depends on certain criteria that characterise the complex of linkages between the various regimes. Fragmentation is an inherent feature of any global policy area, but the degree and nature of fragmentation can vary (Zelli, 2011).

Hence, the research focuses on describing the nature of the linkages between the investigated dialogue forum and the UNFCCC context regarding adaptation. Possible answers include that the forum's statements are complementary, conflicting, lacking, or overlapping. It is hypothesised that there is a fairly high degree of overlap, as most countries probably emphasise the importance of adaptation, especially in LDCs. However, it might also become clear that these forums have helped in harmonising this emphasis before UNFCCC negotiations, which would explain but overshadow the overlap in terms of relevance. Considering that these forums per definition do not include all UNFCCC members, the emphasis on either the role of developed countries or developing countries might be

different. Also, mitigation might still be the principal priority in these forums as emission issues are often the foundation for their formation.
In order to answer the posed questions, this research used qualitative content analysis of primary sources, in the form of official documents published by the intergovernmental dialogue forums. These were found on the websites of these forums and websites of summit databases (e.g. provided by the University of Toronto). Qualitative content analysis is an interpretative method of research, attempting to find "underlying themes in the materials being analysed" (Bryman, 2012: 557). This kind of interpretation is useful to analyse official documents that only provide 'dry' factual statements. The documents have been scrutinised for statements on adaptation or words related to adaptation, such as capacity building, vulnerability, and resilience. The research was conducted in December 2015 and January 2016.

IV. Data and Analysis

IV.I Major Economies Forum on Energy and Climate (MEF)

The MEF was formed in 2009 to provide a platform for 'major economies' to "help generate the political leadership necessary to achieve a successful outcome at the annual UN climate negotiations" (MEF, 2009a). In relation to the UNFCCC, the goal seems straightforward then: to complement the UNFCCC by harmonising the positions of major (national) economies beforehand. However, its statements on the importance of adaptation and the role of countries in dealing with adaptation may still vary. Statements have been retrieved from summaries of the meetings provided on the MEF website.At the first meeting of the MEF in April 2009, adaptation was mentioned briefly as being a subject of discussion (U.S. Department of State, 2009). During the second meeting the importance of adaptation was agreed upon, especially regarding adaptation in the most vulnerable countries (MEF, 2009b). This message was repeated at following meetings, including the third meeting when the "formulation and implementation of adaptation programs and their integration into national development plans" was supported (MEF, 2009c). At the sixth meeting of the MEF in 2010, the Cancun conference (COP16) was brought up for the first time, although it was only at the eight meeting that adaptation was mentioned as a major point for COP16 (MEF, 2010a). At the ninth meeting, there was consensus on a need for strengthening existing adaptation institutions in the UNFCCC, but there were some different views on the necessity of a new adaptation institution (MEF, 2010b). In the tenth meeting, however, after the Cancun Adaptation Framework was established, there was a call for operationalising the Adaptation Committee (MEF, 2011).
Adaptation was largely not discussed, with the exception of few remarks, through meetings eleven to seventeen of the MEF (2011 to 2013). It was only at the eighteenth meeting in May 2014 that the importance of adaptation was addressed once again, in light of the upcoming Paris negotiations in 2015 (MEF, 2014a). The twentieth and 21st meeting also emphasised this as well as the importance of a possible Paris agreement to enhance adaptation efforts (MEF, 2014b; 2015a). The last documented meeting (at the time of writing), the 22nd in July 2015, mainly focused on how key issues, such as adaptation, would be represented in the Paris agreement. It was agreed once again that adaptation is important, but also that adaptation needs more prominence. However, it was stated that although adaptation is urgent, "elevating adaptation does not mean that mitigation and adaptation need to be treated the same way" (MEF, 2015b). The participants encouraged to interlink mitigation and adaptation, while also suggesting mainstreaming adaptation and increasing transparency regarding adaptation efforts.

IV.II Adaptation in the G8

The Group of Eight (G8, at the time of writing G7 but referred to here as G8) is a forum of major industrial democracies in which these countries "deal with the major economic and political issues facing their domestic societies and the international community as a whole" (G7 IC, 2014a). One of the main areas the G8 focuses on is Africa and its development, but the agenda of the summit has been consistently broadened to also include climate change. Keohane & Victor (2011: 10-11) report that between 2005 and 2011 every meeting of the G8 included a "prominent statement on climate change". This research therefore starts with the G8 meeting in 2005, also to not extend the timeframe too much beyond the MEF meetings. The documents considered are summaries and declarations of the annual summits of the G8, retrieved from an information system provided by the University of Toronto. The 2005 Gleneagles Plan of Action on inter alia climate change

contains a section on adaptation, emphasising the need for supporting adaptation in developing countries (G7 IC, 2014b). Thereafter, adaptation was not mentioned again until 2008 at the G8 Hokkaido summit, during which it was recognised that "adaptation will play a correspondingly vital role" when discussing climate change and mitigation (G7 IC, 2011a; G7 IC, 2010). In 2010, a call for more research on adaptation was done, and a conference on adaptation was underlined (G7 IC, 2014c). In 2011, the outcomes of the Cancun conference were welcomed, including those on adaptation (G7 IC, 2011b). Although adaptation was not mentioned at the 2012 summit, the Cancun framework was supported (G7 IC, 2012). Adaptation was not addressed at the 2013 summit either, but it is noteworthy that the MEF was seen as a relevant forum and partner to work with towards Paris 2015 (G8, 2013: 14). In 2014 at the first G7 summit without Russia, adaptation needs of developing countries were once again mentioned, now in relation to the Copenhagen commitments to mobilise USD 100 billion per year by 2020 for mitigation and adaptation. The desired balance of this expenditure between those two policy domains was not addressed (G7, 2014; 2015).

IV.IV Statements on Adaptation in the G20

The Group of 20 (G20) began meeting in 1999 with the finance ministers and central bank governors of the participating countries (including the European Union). It was originally formed to discuss mainly economic and financial issues such as the financial crises in the late 1990s and 2000s; the latter crisis was the cause for the first annual summit of the countries' leaders. Hence, the focus of the G20's summits can be expected to be on the economic side of climate change when referring to this issue. Documents and statements have been retrieved mainly from the University of Toronto information system. The first G20 summit in Washington in 2008 primarily addressed the financial issues of that time and only stated that the leaders "remain committed to addressing [...] climate change" (G20 IC, 2012; similar statement in G20, 2009). It was not until the third summit in Pittsburgh – also the first summit to elaborate on the issue of climate change - that adaptation was mentioned as a necessary part of the Copenhagen agreement (G20 IC, 2011a; G20, 2010). In following summits, adaptation was only briefly addressed, but never elaborated, as being part of climate deals (G20, 2010b: 16; G20 IC, 2011b) or, during the 2011 summit and like the G8 did in 2014, as being the target, next to mitigation, of a USD 100 billion dollar per year support from developed to developing countries. Again it was not clarified how large the share of that financial support for adaptation would be. At the 2012 summit, the G20 only mentioned adaptation regarding the necessity to adapt agriculture to climate change (G20, 2012: 10). In the next three summits, adaptation was only mentioned in 2014 again as a goal to mobilise funds for (G20, 2014: 3) or as part of a potential climate deal in Paris (G20, 2015: 6; 2013). Indeed, the focus of these last three summits was more on supporting the idea of an agreement in Paris under the UNFCCC. Overall the G20 repeatedly supports the outcomes of Conferences of the Parties and other UNFCCC statements or documents and "reaffirm[s] that UNFCCC is the primary international intergovernmental body for negotiating climate change" (G20, 2015: 6). This statement might explain the lack of elaboration on the subject of adaptation, even though climate change in general is often addressed in G20 documents.

V. Discussion

When drawing conclusions from this data some research limitations must be considered. For instance, what is written on paper does not perfectly reflect the underlying processes that were behind the statements presented by the intergovernmental institutions. Adaptation may have been discussed frequently during the summits or negotiations and may have been left out of the texts because naming it was not necessarily considered relevant. The absence of adaptation statements, be it deliberately or unintentionally, could say something, though, about how adaptation is not regarded as a major point to discuss elaborately. To investigate precisely how adaptation was addressed during these summits would require interviewing participants and scrutinising all output of these summits (not merely the summaries and declarations). This was, however, beyond the scope of this research. Related to this is that the individual inputs of countries participating in these forums have not been investigated, because this would also require a more profound research. Moreover, the UNFCCC point of reference was addressed elaborately but mainly included outputs of the major conferences, while the institutions formed by the UNFCCC such as the LEG and AC might have provided relevant statements as well. The point of reference may there-

fore be incomplete. Notwithstanding these limitations, some findings can be extracted from the research. Some general conclusions on all three dialogue forums can be drawn. Firstly, the three institutions frequently make clear that they support (most of the) outcomes of the UNFCCC negotiations and conferences, especially regarding adaptation in developing countries, leaving little room for adaptation to be discussed in a manner conflicting with UNFCCC statements. Secondly, climate change is repeatedly addressed as an important subject as well as adaptation, but adaptation is clearly less elaborately discussed, especially in the G20. The latter could be explained as the G20 is mainly an institution dealing with financial issues. However, the G20 apparently does find it important to discuss climate change in general, so the comparative question arises why adaptation is discussed less when it is regarded as very important in the UNFCCC. Thirdly, all three institutions seem to overlook the subject of transnational adaptation governance, with very few statements on non-state actors and adaptation. Fourthly, whenever they occur, the statements of the forums regarding adaptation seem to be very similar, both in comparison to the UNFCCC and to each other. For instance, they all repeatedly state the importance of adaptation and discuss the adaptation needs of developing countries. The overlap is hence clear but perhaps less relevant than the question whether these institutions have been complementary to the UNFCCC with regards to adaptation statements.

To this end, let us focus on the dialogue forums separately. The MEF seems to be largely supportive to the UNFCCC, as was the initial intention. Although many statements are often underlining UNFCCC text, the MEF may have had some influence on UNFCCC processes. For instance, the MEF emphasised the importance of integration of adaptation practices in 2009 already, and this was included in the UNFCCC CAF in 2010. Also, the MEF discussed increased transparency in 2015, before the Paris agreement included its requirement of more communication around adaptation. It remains unclear, though, whether this is solely attributable to countries of the MEF pushing for these aspects in the UNFCCC. A notable final statement of the MEF is that mitigation and adaptation should not be treated in the same way. Unfortunately, there is no elaboration on this point, as it would be valuable to know whether it could be conflicting with the notion that mitigation and adaptation are given the same priority in the UNFCCC. As for the G8, in 2008 it stated that adaptation plays a role as vital as emission reductions. It also called for more research on the options for adaptation in June 2010. In November 2010, the CAF regarded adaptation with the same priority as mitigation and established the new AC which, for instance, shares knowledge on best practices regarding adaptation. Again, it cannot be established whether the creation of this institution and the CAF statement was initiated by the countries participating in the G8; this would require a more in-depth research of UNFCCC negotiations. However, it can be assumed that the G8 countries were in favour of these two examples of output. Also remarkably, the G8 mentioned the MEF as potential partner; it thus seems there are also linkages between the dialogue forums, which then again may make sense considering that many countries are parties to both forums.

Lastly, as aforementioned the G20 has not submitted many statements on adaptation, except for acknowledging UNFCCC texts. Accordingly, no unique statements were found that might have been regarded as either complementary to or conflicting with UNFCCC statements on adaptation.

VI. Conclusion

This paper set out to investigate how intergovernmental dialogue forums, outside of the UNFCCC, are linked to the UNFCCC regarding adaptation statements. Although the causality behind most of the alleged linkages between the UNFCCC and the three discussed intergovernmental dialogue forums cannot be confirmed, there are instances in which statements of one of the three dialogue forums were introduced later, in a paraphrased way, in UNFCCC documents. Exemplary topics include integration of adaptation, transparency of adaptation, and the importance of adaptation vis-à-vis mitigation, although the stance of the MEF on that last point is, remarkably, somewhat unclear. The discussed institutions all emphasise the importance of adaptation, and give great importance to adaptation in developing countries, therewith repeating the UNFCCC. This leads to little room for conflicting linkages, also between the three institutions. It is noteworthy, though, that transnational adaptation governance is largely ignored by the dialogue forums. A quite suggestive hypothesis for explaining this could be that the member states want to retain their influence and power over climate change policy, not allowing

the influence of transnational institutions to increase. This would be a good starting point for further research on the relation between intergovernmental and transnational climate governance. In sum, there is much overlap between the UNFCCC and the MEF, G8, and G20 regarding their statements on adaptation, but there may also be some complementarity of these dialogue forums on specific adaptation subjects.

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Risk Sharing in the Circular Economy

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Abstract

Activities and research in recent years have clearly shown that the emergence of the circular economy is an economic, rather than only environmental approach (Yuan, 2006; The Ellen MacArthur Foundation, 2012, 2015). Consequently, it becomes crucial to first consider its unique risks and promises for business and economics, and then propose foundations for its adoption as a viable alternative to traditional models. The goal of this article is to research how circular-oriented small and medium-sized enterprises ("SMEs"), due to their unique values and principles, would be able to share risks related to market activities. For this research, six representatives from various circular-oriented SMEs were interviewed based on several relevant risks related to their business models, and they described how they mitigate these risks. The findings revealed a common pattern which was also examined by experts in the circular economy.The results show that a network structure, where companies from related industries and who share a common goal, work together and actively engage customers in companies' activities, can more effectively share risks. These networks need to be highly transparent and based on trust rather than purely on formal contracts.

I. Introduction

Since the industrial revolution, the linear economy has been the most dominant model in our society (Grübler, 1994; Bonciu, 2014). Nowadays it is becoming increasingly recognized that the linear model ("take-make-dispose"), is responsible for producing waste, is unsustainable and results in the devastation and exhaustion the Earth's natural resources (Yuan et al., 2006; Fernandez, 2007; Pearce and Turner, 1990). As a result of resource degradation, procurement prices have been steadily increasing (The Ellen MacArthur Foundation, 2015a). Knowing that the traditional economy fully exploits resources and causes many social problems, it is clear that the linear business model is no sustainable (Preston, 2012; The Ellen MacArthur, 2014; Bonciu, 2014). The circular economy has been defined by The Ellen MacArthur Foundation as an alternative solution and has the potential of replacing the traditional linear business model.

II. Economic Perspective on Risk Sharing

From the beginning of the 1970s, a major interest of economics scholars were alternative governance forms - both within and between firms and the market, as one of the key aspects for the organizational success and minimization of transaction costs and risk sharing (Chiles et al., 1996). Governance form relates to the decision on whether to buy from the market, make or form alliances. It had been perceived as a crucial decision for every firm as it could create lots of damage and losses for organizations if incorrectly chosen, but also an area where they would be able to share risks if they would create a successful joint venture or other form of partnership (Williamson, 1979; Chiles et al., 1996). In a traditional economic system, when companies decide to share risk, various important factors are considered.These traditional factors stem from early research in the economic field. Based on traditional

competitive market theory, Coase (1937), Williamson (1979), Buvik, & Reve (2001) and Hennart & Zeng, (2005) discussed different aspects that became determinants for risk sharing. For example, by choosing adequate governance modes and contracting methods, companies become jointly responsible for asset-specific investments and they are able to share risks. However, even though companies have the possibility of signing extensive contracts, due to the existence of unforeseen contingencies, they are not able to predict all potentially harmful situations. Companies are often forced to make quick decisions based on incomplete information (Xiao and Yang, 2009), wherein the existence of bounded rationality impedes their choices (Williamson, 1985). Due to bounded rationality, even when actors try to make rational decisions, depending on product quantities, they will be constrained by uncertainties, which can then lead to different risks. Therefore, companies become less inclined to make asset-specific investments, which in general results in a lower welfare perspective for the overall economic system (Hendrikse & Bijman, 2002; Ruzzier, 2012). Transaction Costs Economics ("TCE") assumes that when asset specificity for certain investments is high, then it is more likely that companies integrate vertically so that the whole supply chain of a company is owned by that company (Buvik & John, 2000). On one hand, such integration saves the company the costs of an insufficient collaboration, however on the other hand, the company needs to handle all encountered risks by itself.

As an example from a traditional industry, Tsay (2002) studied risk sharing predicated on manufacturer return policies wherein the manufacturer took responsibility for over-supply. In companies based on a traditional exchange, buyers use their bargaining power to influence suppliers to support their own, private objectives. When manufacturers take on surplus risk, this is perceived as a risk-sharing method wherein the retailer can return unsold articles back to the manufacturer. In the case of the circular economy, however, additional issues play a role and make the situation more complicated to deal with. At the moment it would be too risky for a circular small, or medium-sized manufacturer to take entire responsibility for something as comprehensive as say, managing the whole circular supply chain on their own. The first issue is that demand and supply for circular-oriented product/services is still quite low and implies high production costs. The second issue is that there are operational and legal constraints that make reverse logistics processes difficult to cost-effectively manage (Preston, 2012). A further complication is that the appropriate end user and partner incentives are not currently in place to facilitate this reverse logistics function.

Moreover, De Man & Friege (2016) pointed out that the major risk facing companies oriented in the circular economy is related to marketplace activities. They cite two major reasons for why economic circularity may create rigidities and dependencies that are difficult to establish and manage in a market economy. The first reason is that quantities are processed and products produced in traditional markets based on variable market demand. Secondly, market imperfection leads to the continuous, regular appearance and disappearance of companies from the competitive landscape.

As already mentioned above, the traditional economic approach currently offers different possibilities for how companies can share risks, e.g. forms of joint ventures or other forms of cooperatives. Recently however, other unconventional structures have been observed, where companies more susceptible to downside risk, are able to risk share. These could serve as better options for the Circular Economy system. Examples include collective insurance (e.g. Brood funds) and banks offering flexible financial systems allowing companies the opportunity to access zero-rent loans, while enabling an environment where contributing partners collectively support each other. Though this is a good start, there is still a need for more effective ways for companies to risk share.

III. The Role of Small and Medium Enterprises in Risk Sharing

In creating a structure that allows companies to share marketplace risks, small and medium enterprises ("SMEs") can play a crucial role. In the Netherlands, the majority of circular enterprises are SMEs possessing an innovative mindset and a drive for new business possibilities. They invent and create new workplaces, and are seen as a motor for the future economy (Storey, 1995; Sullivan-Taylor, 2011). Because they are constantly challenged to create strategies that balance the need to remain profitable while maintaining their mandate to drive sustainability within themselves and their processes, they still manage to compete fairly in the marketplace (Iles et al. 2013). By choosing to adopt this unconventional approach, circular-oriented

SMEs face unique circumstances and the question becomes how should one organize a well functioning circular economy to enable companies to share risk from "self-imposed" constraints and market imperfections, so as to remain profitable and ideally show growth? This article assumes that CE companies are more sensitive to particular risks when compared to traditional companies (Van Gils, 2005), however different tactics exist for how they might share these risks. Though each company is unique and their particular situations should not be considered as universally applicable, identify common patterns have been identify between how specific risks they face can be shared.

IV. The Circular Economy

The circular economy has been already studied form different perspectives by scholars and experts in the field of sustainability. Linder and Williander (2015) opinion about the CE is aligned with economic perspectives as a strategy for companies to achieve effective growth. For others, this new economic system offers to not only maximize economic growth, but also preserve social and environmental values (Lieder and Rashid, 2016, Zhu, 2000; Greyson, 2007). One of the characteristics of the circular economy is the ability to exchange materials like energy, water, and information etc., as one entity's waste becomes another's input (Pearce & Turner, 1990). Furthermore, in this circular approach, all parts of the economic system work together in order to achieve a collective benefit that is higher than the sum of the individual benefits each entity would realize if operating on their own (NDRC, 2004).

The Ellen MacArthur Foundation (2013a, p. 22) defines the circular economy as, "an industrial system that is restorative or regenerative by intention and design." This definition depicts the importance of shifting from traditional "end of life" product approaches towards a cradle-to-cradle approach; which only allows the use of renewable energy sources while eliminating toxic chemicals and waste by innovating the smart design of products, systems, and business models. In this sense, the circular economy represents a new vision for energy and resource usage, value creation and entrepreneurship. From an economic perspective, the majority of research on the Circular Economy was developed from theories based on the transformation of economic structures and business rationales with a main focus on "product as a service" (Lieder and Rashid, 2016). The underlying principles of this strategy are product life extension in order to minimize material and energy flows as well as to minimize the negative environmental effects of resource exploitation (Stahel and Reday-Mulvey, 1981). According to Stahel and Reday-Mulvey, the main objective of the Circular Economy is to create, preserve, exploit and restore the highest value of the product for the longest period of time. Using "a mix of tangible products and intangible services designed and combined so that they are jointly capable of fulfilling final customer needs" (Tukker and Tischner, 2006), it is argued that an increase in service-orientation, rather than product-orientation, will facilitate the design of systems with significantly lower environmental impact while maintaining economic growth.

V. Perspectives for Risk Sharing in the Circular Economy

Since the majority of circular-oriented SMEs are seen to be innovative, they often rely on different activities in production/supply chains, as well as other companies' resources. Recent studies have shown that even though the new organizations are prone to high levels of uncertainty and often require asset-specific investments, vertical integration is no longer the rational choice for them as was traditionally explained by TCE (Holmström and Roberts, 1998, p. 92). Increasingly fast-changing and uncertain environments have, as a result, also increased the degree of interdependencies between partners. Though these interdependencies may seem to complicate the situation (Coase, 1937; Williamson, 1991), in the case of the circular economy, they can also offer new possibilities for inter-company risk-sharing. For example, thanks to open information exchange and collective decision making related to contingencies, companies can more precisely forecast demand. This accomplishes two goals. First, it diminishes the risk of over-production and the accumulation of "waste". Secondly, this addresses consumer tastes to operate more responsibly and not overproduce. In situations of oversupply, collective responsibility could diminish financial losses to individual companies within the collaborating partnership. Moreover, the network structure enables the "second hand commodity" to be better and faster utilized when transferring ownership further down to the partners. However, in order to create such a collaboration, organizations would need to

collectively form a structure that would enable them on the one hand to share market risks, but on the other hand achieve common goals of value creation for all stakeholders (Post et al., 2002). This collaboration could be a network built upon inter-organizational pillars that goes beyond the traditional construct of pure competition that is mostly focused on self-protecting mechanisms. Strategic networks have been found to be one way of collaborating when companies are unable to rely on their own recourses and capabilities (Podolny & Page, 1998). Networks can have multiple forms wherein members occupy different positions among network value chains and possess various characteristics (Inkpen and Tsang, 2005).

When we think of networks, specifically as means for coordination, we can also refer to them as a specific form of governance. Williamson's (1975) work on various forms of governance over a 20-year span challenged the belief that markets are the only form of non-hierarchical coordination. As a result, networks were seen as either: a mixture combining market and hierarchical elements, or as a separate form of governance in and of themselves (see Powell 1990). Provan and Kenis' (2008) work looked at networks of three or more independent companies working together so as to achieve both collective and individual goals. When operating in the public sector, these networks may come about either through mandate or through contracts, however this 2008 work noted that these networks may also be initiated by the members of the networks themselves. As organizations working together towards common goals as well as their individual targets, Kilduff and Wenpin (2003) defined them instead as "goal-directed" as opposed to "serendipitous" or accidental networks. When these networks come together by joint design, they can become very complex structures which challenge the traditional explanations provided in both organizational and strategic management studies.

VI. The Governance Structure

The governance structure, which emphasizes hierarchical control, can differ in incentive intensity, administrative controls and applicable contract law regime (Williamson, 1991). Mandell's (2001) work describing how different, contributed resources to a network create varying levels of power and influence within that network structure, supports the notion that even though networks rely on collaboration, traditional hierarchical structures and relationships persist. Additionally, some degree of governance amongst these individual firms will be necessary and can help ensure network members work together, are mutually supportive, efficiently and effectively utilize contributed and acquired resources, and do not get embroiled in unnecessary conflicts. Even though the member firms are independent and will have varying levels of interactions amongst each other, utilizing institutional or authoritative constructs for collaboration so as to coordinate network actions and allocate resources, creates a resulting focus on governance. Provan and Kenis' (2008) research has described three forms of network governance: Participant-Governed Networks ("PGNs"), Lead Organization-Governed Networks ("LOGNs") and Network Administrative Organizations ("NAOs"). PGNs are the simplest of the three, as they involve no additional governance entities to be created/involved. As suggested by its name, this form of governance is conducted by the participating organizations themselves, without the need for separate entities. This may either take place through a formal process involving regular meetings among the organizations' representatives, or more informally through ongoing exchange between interested parties within the network. Though on the surface, PGNs may seem to be preferable from an equality perspective, this decentralized, collective self-governance has been experienced to be insufficient, and instead favours the need for lead structures. LOGNs tend to come about in vertical (i.e. buyer/supplier) relationships where there is size or power disparity amongst the network participants. Lastly, NAOs exist when a separate administrative entity is created to govern the network, its activities and the members. This structure does not eliminate direct interaction among the participants, however, NAOs play a central role in coordinating activities and helping preserve the longevity of their networks.

VII. Partner fit

This notion indicates the degree to which partners share common characteristics (Douma et al. 2000). When companies decide to collaborate, finding the right partner is important for mitigating opportunistic behaviour and can increase trust levels due to the quality of the relationship (Saxton, 1997). This study assumes that network structures promoting a well-functioning circular economy would need to possess three types of fit: Cultural, Human, and Strategic.

Post et al. (2002, p.606) defined organizational culture as a, "blend of ideas, customs, traditional practices, company values and shared meanings that help define normal behaviour for all who work for a company." Moreover, Park and Ungson (1997) defined it as a manifestation of the distribution of power and control, wherein openness, innovation intentions, and willingness to collaborate all play important roles. Partnering with other companies may endanger individual company culture (Carrillo & Gromb, 2007). This is because employees often possess strong beliefs about their own corporate culture, often rooted in the companies they work for. Therefore, depending on how close partners are, two possibilities exist for how to deal with different company cultures. In the case of loose forms of networks, companies may allow the cultures to co-exist. However, when partners form a close relationship, they may create one new culture based on the individual partners' original cultures.

Moreover, the existence of openness and lack of culture rigidity allows employees to work creatively, where knowledge transfers freely throughout the company and enables a "shadow system" of the firm for exchanging and sharing ideas (Cook, 1999). Due to the specific values and principles that companies in a circular economy possess, having team members who share similar beliefs and culture would be a crucial element for network growth and sustainable relationships. Partnering amongst companies with differing strategic goals can be challenging since they may not fully understand each other. For example, one of the factors underlying TCE depicts difficulties in negotiation between contracting partners where there is a lack of common understanding about actions and states of a world where the parties have insufficient prior experiences (Hart, 1995). In order to combat market share issues from large, dominant players in a field, Chen and O'Mahony (2009) found as effective strategies, that when there is a good partner fit, CE networks compete by producing products viewed as uniquely authentic, or find success when they tap into an existing cultural sentiment against mass production (Carroll & Swaminathan, 2000; Carroll et al., 2002). The effect of possessing a common culture, shared goals and the right employees is so strong, it is even possible for circular oriented SMEs within the same sector to partner and share the competition risk resulting from having to go up against huge companies. By creating an "us" versus "them" or "oppositional" identity, Swaminathan and Wade (2001) found that this mechanism allowed for more effective competition by smaller companies.

VIII. Transparency

Transparency can be defined as an openness and willingness to share information. Barratt (2004) distinguishes, based on the active vs. passive nature of the activities, between information sharing and transparency. Transparency is a passive quality that relies on and is part of the organizational culture of an entity, which in turn enables information sharing. This type of sharing is critical to how a circular economy performs. As already mentioned, transparency and subsequent information sharing reduce information asymmetry and consequently help develop trust. This interrelationship between trust and transparency is effectively a self-reinforcing feedback loop, as Akkermans et al. (2004) show, where, as trust grows, so too does transparency and information sharing. Since contracting parties value sensitivity and confidentiality of information, the more private the information shared is perceived to be, the more quickly will trust levels be established amongst them. In order to share risks related to e.g. accurately forecasting market demand, companies need to be open and willing to share information with their partners.

IX. Trust

Along with formal contracting, trust is another safeguard mechanism against opportunistic behaviour (Achrol and Gundlach, 1999). The theory of incomplete contracts states that it is very difficult to include all detailed information in a formal agreement due to the existence of contingencies and high costs required for creating comprehensive contracts (Hendrikse & Bijman, 2002). In this case, due to the incomplete nature of contracts, trust plays an important role, especially when companies decide to collaborate (Inkpen and Tsang, 2005). In describing trust, honesty and benevolence are key terms to define and consider. Deutsch (1958) and Larzelere & Huston (1980) similarly define trust as the degree to which a company feels that "its exchange partner is honest and/or benevolent." To then trust another member's honesty is reflected by one firm's belief that their transactional partner is sincere, reliable, fulfills whichever obligations are assigned to their role in the network, and stands by their word (Anderson and Narus, 1990; Dwyer and Oh, 1987). Lastly, "benevolence" reflects the attribute that one's trading part-

ner is interested in seeking joint gains, and that they have the former party's interests and welfare at heart. Anderson et al. (1987) and Crosby et al. (1990) claim that benevolent partners pursue long term group gains over their own immediate self-interests. With this in mind, they are not likely to take unforeseen actions that negatively impact the network (Andaleeb, 1995; Anderson and Narus, 1990). All these actions/beliefs act to increase trust within the system. Information asymmetry is the notion that knowledge is rarely the same among transacting entities. One generally possesses better or more complete information than the other. This asymmetry and existence of uncertainty increases transactional risk. However, this risk is mitigated by the existence and fostering of trust. Multiple scholars (Sahay, 2003; Akkermans et al., 2004) have posited that as transacting companies become more acquainted through continued interaction and communication, trust will be fostered and continue to grow. Akkermans et al. (2004) maintain that as the acquaintance period continues, levels of information asymmetry and mutual uncertainty decline at the same time as transacting habits become established and intra-firm behaviour becomes institutionalized. This, however, is a continuous process. Transparency and open communication are tools that further build trust as they remove potential misinterpretation or erroneous assessment of the counterparty's motives. For the highest levels of successful collaboration and intra-cooperation, as well as lower transaction costs, trust will need to be institutionalized (Inkpen and Tsang, 2005). By virtue of being a member of the network, it shows others that they should be considered to be trustworthy. Trust not only saves on transaction costs, but it also enables companies to share risks with their employees when signing employment contracts. For example, if they both sign "nonbinding contracts" they are not constrained by legal obligations. The worker is free to work for other employers and the owner can be flexible in periods of unforeseen uncertainty (Stiglitz, 1974).

X. Methods

Data was collected through either face-to-face or via Skype semi-structured interviews. Additionally, one interview was conducted via phone call. All interviews were recorded wherein each interview was approximately an hour in length. Standard questions asked during the interviews were formed based on operationalization standards, and the operational construct applied for this study. The aim of the interviews was to gain deeper understanding of the phenomenon since there is an insufficient amount of academic research regarding inter-organizational risk-sharing components needed for this new economic approach, and also a limited quantity of economic theories applicable to this phenomenon. Furthermore, concepts addressed by this research are still vague and abstract, and therefore needed to be better explored.

XI. Results

The empirical results show that collaboration plays a crucial role for risk-sharing within the circular economy. It has been found that within a network, companies can exchange information amongst themselves. During interviews, the interviewees claimed that collaboration offered companies much more than when they work apart. Such a structure would not only enable companies to work more effectively, but it would also enable companies to share risks related to uncertainty and market externalities. Currently, networks exist where circular-oriented companies exchange knowledge and contribute to research, however there are only a few examples of networks where circular-oriented SMEs collaborate at the operational level. Furthermore, empirical findings show that the circular economy is not only about connecting with companies from related sectors, but also with its consumers. One of the experts assumes the importance of the Internet when building such networks and sharing different risks. The governance structure is an inseparable element of every organization since every company is based on certain levels of hierarchy, and decisions are made based on the division of power. Also, the results of this study show that a proper governance structure is crucial for a network where circular-oriented SMEs collaborate. In general, related findings show high levels of similar positions for how a decision-making process should be organized in such network structures. Respondents claimed that a well-functioning network structure should be based on a democratic/collective decision-making process, with equal division of power rather than based on a highly formal structure. Also the size and/or resource contribution of a single partner shouldn't play a role in determining power-division. Also, a hierarchical structure would not work well in circular-oriented company networks because it could exclude some partners and make them feel less important. Moreover, the go-

vernance structure should not be based on strange rules and policies. Also the amount of participants should not be constrained. In addition to a democratic/collective governance structure, there is a need for strong leadership enthusiastic about new possibilities in the circular economy and not afraid to take risks.

Some respondents, mostly the representatives of the circular-oriented companies, admitted that they had been attracted to the circular economy because they were influenced by a person with a strong vision for the circular economy. Another important new insight related to governance structures was called, co-creation. The interviewees used this term to describe a decision-making process.

In this study three types of partner fit had been found as needed elements for creating a well-organized network structure between circular-oriented SMEs: common culture, human fit and strategic vision. The results show that they all are important in such a structure and enable companies to share partnering as well as cash flow risks. Collaboration with partners who share a common vision can support them financially in the event of poor cash flow. From these three partner fit elements and common culture was the one most often mentioned during the interviews. Although the respondents comments were consistent with the assertion that common culture and strategic vision is needed for a well-functioning network, it was found that the circular economy network structure would require a human fit composed of employees with differing, non-common experiences and backgrounds. The circular economy networks need a different entrepreneurial spirit and innovative mindset. Also having a strategic vision was often mentioned as a common goal. Along with a common culture, partner fit and strategic vision, it was found that operational fit is also important for a circular-oriented network. Operational fit between partners is important for assuring that companies produce adequate outputs in line with circular economy principles. Next to the interpretation of common culture as sharing values and beliefs about the circular economy, respondents argued that it is preferable for collaborating companies to be from the same industry. For the well-functioning circular-oriented networks, companies should share the same culture and have the same goals, however it doesn't exclude companies that are not in line with the same principles. The respondents claimed that new partners would often be in the beginning of a transition, so they need guidelines and help in the beginning, but if they share the same ambitions, they can become part of the network. Another respondents commented that as soon as companies see how much value such collaborations bring, they become more and more enthusiastic.

In this article transparency and information sharing have been defined as passive and active processes wherein the passive one is related to openness and having nothing to hide, and information sharing is an active one and has to do with the willingness and activities to share. The empirical results show that both aspects are crucial for a circular-oriented network structure. Information exchange is important when companies want to share risks related to customer demand. Although it is not always required to share sensitive information, the respondents maintain that sharing information with partners is always more beneficial than being only partially transparent. When partners exchange information related to the product and co-create, especially in niche markets, they can better predict demand. In order to share customer satisfaction risks, the majority of companies involve their customers throughout the whole process. Story telling is a very popular method to attract and satisfy customers. Respondents agreed that consumers have the right to know both the history and materials used for the products because this allows them to make conscious choices. By informing them that one product is made in a more sustainable way than another, this automatically promotes the circular economy, but most of all, shares risks related to customer dissatisfaction. Moreover, to share this particular risk, companies organize meetings where they innovate about the product/service they offer, which then saves them extra effort and time.

As it was already mentioned information sharing naturally protects against opportunistic behaviour. In a network where partners exchange information, word would spread very quickly if one of the companies were to play unfairly. However, so far none of the respondents have experienced such situations firsthand. Findings show that transparency helps with technological innovation risk-sharing. Collaborating partners feel responsibility for each other's success, since their own survival depends on their partners' performance. One respondent gave an example of how transparency helped in the sharing of risk related to not leveraging advancements in technology. Moreover, by exchanging information within a network, companies are well-informed about input costs and oppor-

tunistic behaviour is automatically diminished as a result. The results showed that the SME representatives generally possess high levels of trust and are less likely to consider signing legal contracts. They claim that legal contracts are expensive and not worth the effort, if not necessary. Because the majority of them are open to collaboration, they don't perceive other companies purely as competitors. Although, they would rather build trust than construct contracts, some respondents claim that it is still good to have some legal base.

Moreover, the findings show that respondents opt for honesty, realization of common interests and responsibility for realizing commitment. By building trust with their employees, interviewed circular-oriented SMEs were able to form more flexible work contracts (nonbinding contracts) with their employees, which shared the risks of uncertain demand. Employees benefit on the other hand by possessing more freedom and are not obligated to work for only one employee. Mutual trust is important when companies want to share demand risk with their customers. By making upfront agreements based on trust, circular-oriented companies can produce correct amounts of product and avoid financial loss. One of the respondents commented. This study assumed that circular-oriented SMEs are more prone to specific business risks due to a mismatch with the old, traditional economic system. Furthermore, due to the existence of multiple governmental and business legislations and their self-imposed principles, circular-oriented companies have more challenges to prospering in competitive ways. Because they are sensitive to unforeseen circumstances, they make conscious decisions regarding supply and demand, and so they would rather produce less than deal with oversupply. The interviewed representatives of the circular-oriented SMEs are currently not engaging in formal activities to share risks as they still mostly rely on themselves or their direct partners. Although these companies offer, to some degree, various strategies as to how to share risk, these are practiced on a small scale within their own group of partners.

XII. Conclusion

For enabling companies to share risk, there is a need for an effective collaborative structure. Collaboration would enable companies to identify the risks, but most of all to realize the benfits of collective work. This paper proposed a network structure as one such collaborative form. These network structures would need to have democratic, decentralized governance with high-levels of flexibility and adaptability. These elements would enable a better match with new flexible financial systems that are highly required for a well-functioning circular economy. However, there can be a conflict between the openness of a flexible financial structure and those creditors who require a fixed-term system in order to offset their lending risks and see who is to be held responsible and accountable. Therefore, the nature of entities investing in the eircular economy need to align with the long-term nature of its principles, support flexible structures and should not expect short-term gains. Risk sharing by creating, for example, a collective ownership in the form of joint ventures or other cooperatives are not yet fully practiced by circular-oriented SMEs. They are also not suitable for enabling a well-functioning circular economy since this system requires flexibility and adaptability. In the transition towards the circular economy, companies would need to be able to join and disappear from the networks, therefore complicated ownership agreements constrain the system and could make it unworkable. A more suitable structure could be similar to the one introduced by Bitcoin, which is based on a block chain system that works without having any trusted central authority. Data can be accessed and used by every involved actor, which creates a high level of transparency and social control. This would mitigate the possibility of opportunistic behaviour, but most of all allows companies to make collective decisions. Furthermore, network structures could be diverse depending on the companies' industries, however they would need to be connected though one central coordinating system.

Risk sharing would be fostered and assured by forming networks based on partners common strategic goals, cultures and people interests. Collaboration within a network would need to be highly transparent with unconstrained information exchange. Necessary trust between partners would need to be developed and preserved in order to make the network successful for the long term.The circular-oriented SMEs interviewed in this study seem trustworthy due to their transparency and willingness for open information sharing. This helped them be more flexible in uncertain situations and enabled them to share supply and demand risk with their employees and partners by using, for example, nonbinding contracts. The circular

economy cannot be fully compared with the traditional economic system since companies in the circular economy are not only profit-driven. The enthusiasm and emotions observed while conducting interviews with the respondents, shows that a lot of satisfaction is derived, and most of all comes from being able to fulfill environmental and social goals; that financial profits alone are not enough. They are more open to collaboration, in contrast to traditional companies that act only based on competitive principles. As Tencati and Zsolnai (2008) argue, by applying open and collaborative attitudes, it is possible to create an economic structure which is not necessarily based on a traditional competetive paradigm.

Collaborative networks foster long-term mutual benefits, not only for direct partners, but most importantly, value for the whole business ecosystem (Mills and Weinstein, 2000; Jensen, 2001); and this should be a main objective for every company. Since it has been shown that risk-sharing provides tangible benefits, it would be beneficial for future research to examine, draw parallels and see how other industries (for example, collective insurance and collective space-sharing entities) have been able to successfully share risk. In future research, these new strategies of risk-sharing should be studied and considered by companies in the circular economy. In addition to the economic perspective, this article used an organizational viewpoint to show what the crucial elements for a collaborative structure are that would enable them to share risks in more effective ways. These are however, not exclusive to these collaborative structures and a more comprehensive study is strongly recommended.

XIII. References

XIII.I Literature

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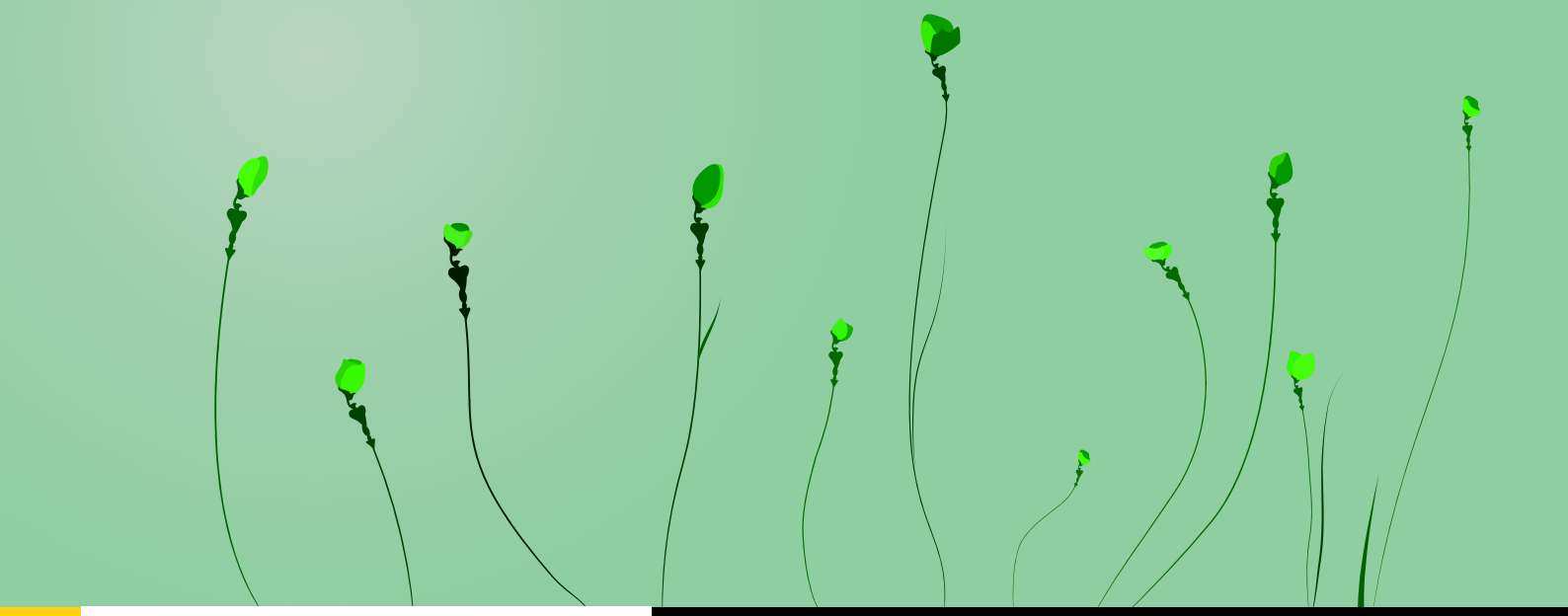

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