Discourses and Depoliticization of Agroecology in Global Governance

RSO-80436 (MSc Thesis Rural Sociology)

Lisa Deijl

931101180100

Supervisor: Dr. JAB (Jessica) Duncan

Examiner: prof. dr.ir. JSC (Han) Wiskerke

MSc Organic Agriculture

Specialization: Sustainable Food Systems

Abstract

This thesis investigates the Regional Symposium on Agroecology for Sustainable Agriculture and Food Systems in Europe and Central Asia that was organized by FAO in Budapest in 2016 as a case study of how various actors express different discourses of agroecology. These discourses are analyzed through the concept of a participation-science-policy interface. The advancement of this concept is central to this thesis. The PSPI provides both an analytical lens through which contemporary governance dynamics can be understood, as well as a normative ideal-type that prescribes what these dynamics should look like. The PSPI is informed by theories of co-production of knowledge.

The starting point for this thesis is the idea that non-scientific and non-state actors have significant contributions to make to decision-making. Agroecology is an appropriate case study because it values multiple systems of knowledge. Through discourse analysis, the different discourses on agroecology are shown. The results of this analysis show that through their interventions in the symposium scientists and most policy-makers spoke of agroecology as something technical, whereas civil society participants presented it as a movement that could transform the food system. However, contributions of participants were not completely taken up in the recommendations of the symposium, leading to the conclusion that depoliticization of agroecology took place.

Acknowledgements

I would like to thank my supervisor dr. Jessica Duncan, for giving me the opportunity to work on this project. Her excellent support and enthusiastic involvement made me want to put in the maximum effort. I could not have wished for better supervision.

Secondly I want to thank dr. ir. Laurens Klerkx, for providing me with some answers on my questions about Science and Technology Studies.

Thirdly I want to thank Liam, who supported me amongst other things by feeding me delicious pastas.

Table of contents

List of abbreviations

CSO	Civil society organization
FAO	Food and Agriculture Organizaton
MaP	Multi-actor Perspective
NGO	Non-governmental organization
PSPI	participation-science-policy interface
SPI	science-policy interface
TNC	transnational corporation

1. Introduction

It is . . . possible to visualize a kind of social science that would be very different from the one most of us have been practicing: a moral-social science where moral considerations are not repressed or kept apart, but are systematically commingled with analytic argument without guilt feelings over any lack of integration; and where moral considerations need no longer be smuggled in surreptitiously, nor expressed unconsciously, but are displayed openly and disarmingly. Such would be, in part, my dream for a ''social science for our grandchildren.''—Albert O. Hirschman
(in Fischer 2000, p. 68)

This is a thesis about speaking and being heard. It is about knowledges of all sorts and valuing them. It is about acknowledging the social dimensions of all knowledge. It is about food systems, but mostly it is about democratic governance.

This thesis is organized around three themes. The first theme is the food system. The currently dominant way of organizing our food system is causing many problems for people and the planet. The natural resource bases for agricultural production are becoming exhausted (Gliessman, 2015), and part of the world population cannot feed itself, while another overfeeds itself (Qaim, 2016). Many solutions are being proposed, but the focus of this thesis on one in particular: agroecology. This is a strategy for agricultural production that mimics natural ecosystems. Agroecological production systems exhibit diverse cropping systems, tight nutrient cycling and a reduction of artificial inputs, amongst many other things. (M. Altieri & Nicholls, 2005).

Agroecological methods are built from the multiple knowledges about production that farmers from all over the world have developed in their specific localities (Coolsaet, 2016; Gliessman, 2015). These knowledges have been and are threatened because of the spread of a global industrial agriculture that, amongst other things, uses agricultural techniques developed by Western science that are presented as universally applicable (Phillips & Ilcan, 2003). This ties in to second theme of this thesis, which is the concept of cognitive justice: the right of different practices to co-exist (Coolsaet, 2016). Scientific knowledge is often awarded a powerful place in society, because it is seen as the place where unbiased knowledge is produced, and this perceived objectivity of scientific knowledge can work to silence other knowledges (Anderson & McLachlan, 2015). In this thesis, I illustrate how the objectivity of science is only partly true, and how science is created through social context.

However, the perceived objectivity of science remains strong, and has also given scientists a long-standing role of importance in public decision-making processes (Weingart, 1999), which brings us to the third theme: governance.

Contemporary decision-making processes are characterized as temporary constellations involving actors from multiple sectors of society (Swyngedouw, 2005). Decision-making is no longer only a task of elected government officials, but other individuals and organizations can be included as well. This decision-making style is 'governance', and is decidedly different from its predecessor 'government'. As I will explain, government-led decision-making is often thought of as a science-policy interface (SPI), in which policy-makers receive advice from scientists. Nowadays, governance includes a whole range of other actors, which are not accounted for by this model. Furthermore, concerns exist over whether this new way of decision-making benefits or obstructs democracy. So far we lack tools for assessing the democratic legitimacy of decisions made by these new governance constellations. This thesis attempt to make a start at advancing such a tool.

It is through this tool that the three themes come together. In this thesis, I argue that policy-making processes should no longer be modeled as an SPI, but instead as a participation-science-policy interface (PSPI). I argue participation in governance is something to be strived for, as I will show it can contribute to cognitive justice and more holistic decision-making through co-production of knowledge. The case study on which I apply the PSPI is a symposium for agroecology that was organized by the FAO. At this symposium, actors outside of science and government were invited to speak.

The structure of this thesis is as follows: first, I review the literature on the emergence of the dominant agri-food system and its problems. Then, I review the literature on agroecology, and its relationship to the FAO. After this, the research questions are introduced. In chapter 4 I describe theories of governance and policy-making that together construct the concept of the PSPI as an analytical tool and as a normative ideal-type for governance. In chapter 5 I introduce the methodology that I used for analyzing the case study. In chapter 6 the results of the data analysis are presented. In chapter 7 I discuss these results and in chapter 8 I give my conclusion.

2. Literature review

2.1 Introduction

In this thesis, I will focus on civil society participation in governance of food and agriculture. As I will show, at this moment in history, there are several bodies of thought contending for the power to shape our food systems. First, I will outline what the food system looks like today, followed by why it is being contested and then explaining one of the alternatives: agroecology.

'Food is a liminal substance (…) bridging (…) nature and culture, the human and the natural, the outside and the inside' (Atkinson 1983 as cited in Oosterveer, 2005). Food is a basic need for humans to survive, and is for this reason alone already a special commodity. Furthermore, the production, processing and consumption of food for humans affect many dimensions of life on planet Earth. For example, there is the ecology of the biodiversity upon which we are reliant for our food, there is the health aspect of having access to correct nutrition, and there is "the experience of food in the social and cultural expression of individuals, families and communities" (Welsh & MacRae 1998, p. 241). In this thesis, the term 'agri-food system' is used to describe the way a society organizes the many steps from soil to stomach. The agri-food system concept captures the interconnectedness of the ecological aspects ("agri-", from the Latin "ager" means "related to fields/soil") and the human aspects of food production, processing and consumption. In what follows I will concisely describe the dominant way of organizing the agri-food system today

Agri-food systems that differ across space and time. As Thompson et al., (2007) write, people across the world live in diverse rural worlds, throughout which very different actors and economic drivers affect their livelihoods. Similarly, the food regime genealogy as provided by McMichael (2009), shows that also throughout time, agri-food systems have changed. However, there are themes that across time and space have helped to constitute the dominant agri-food system as it stands today. It is my goal here to describe these themes and how they relate to the wider political economy. I highlight some of the most important characteristics of the dominant agri-food system at this time and how they came into being, in order to describe the context of the case study. I do so by using the work of Lang and Heasman (2009), who give a succinct overview of the issues at hand at the moment, and by reviewing food regime theory which gives a more historical overview. Both, however, conclude that the system as we know it may be coming to its end.

2.2 The productionist paradigm

Lang and Heasman (2009) open their book *Food Wars* with the statement that the last half of the 20th century was dominated by one type of agri-food system, which no longer functions adequately. Lang and Heasman argue that the dominant food system is primarily shaped by the logic of 'the productionist paradigm'. According to them, the productionist paradigm is about 200 years old, and consolidated its power heavily after World War II. The main objective of this paradigm is to increase production output. For most of the existence of humanity, 'getting enough food' was a primary everyday concern for the majority of people. The objective of creating more food thus was a noble cause.

Lang and Heasman emphasize that the productionist agri-food system is part of a larger outlook on society that characterized the industrialization era. For them, a paradigm is "an underlying fundamental set of framing assumptions that shape the way a body of knowledge is thought of"(2009, p. 17). Key in the productionist paradigm were those same assumptions that shaped the development of industrialization as a whole: "to increase output and efficiencies of labor and capital for increasingly urbanized populations"(p. 20) This was partly facilitated by the large-scale use of fossil fuels. For a time, with new technology and machinery, it became possible to create ever bigger yields in agriculture. The idea was that more output would benefit the health of those populations. As Lang and Heasman describe, this output-driven idea of health is very limited. It places responsibility for diet-related health on the consumers. Following this logic, consumers are supposed to choose foods that are healthy for them. However, as Lang and Heasman argue, food choices are more often than not socio-economically determined and not everyone has healthy foods available to them.

The central thesis of Lang and Heasman's book is that the productionist paradigm has undergone a long term transition: "from a food policy dominated by farming and agriculture, agribusiness and commodity-style production, to one dominated by consumption: major branded food manufacturers, food retailing and food service."(p. 12) After World War II, the locus of power shifted from farming to processing and retailing. In this new power structure, large transnational corporations have conglomerated and control a large part of the market share. "New ways of packaging, distributing, selling, trading and cooking food were developed all to entice the consumer to purchase"(p.139). Though choice for the consumers seems greater than ever (for example, they can have all vegetables and fruits independent of what season it is), in reality most consumers eat "from a core of about 100 basic food items, which account for 75% of our total food intake"(p.140). These core products are largely distributed by a small number of food company clusters, who therefore hold enormous market

power. Furthermore, TNCs also are increasingly able to influence public decision-making processes about the very rules that should protect the public from potential disadvantages of their powerful positions (Clapp & Fuchs, 2013). There exists a strong discourse of "feeding the world" in global food governance, which is often taken to mean "increase outputs" (by which issues of unequal access to food are ignored) (see for example FAO 2016, p. xi), which is a discourse to the advantage of the corporations, who are happy to turn out more food. When all of the above is considered, the productionist paradigm seems to be stronger than ever.

The way these TNCs produce is still based on intensification, supported by sophisticated biotechnologies. Furthermore, they are heavily reliant on fossil fuels. Lang and Heasman (2009) write that because of the damage the productionist paradigm has caused on environmental and human health (to which I will come back in more detail later), it is running out of steam and being challenged by two other paradigms. One is called the Life Sciences Integrated paradigm, the other the Ecologically Integrated Paradigm. The case study of this thesis could be seen as an expression of the latter.

2.3 Insights from food regime theory

In food regime theory a dominant agri-food system is called a food regime, which is defined as: a 'rule-governed structure of production and consumption of food on a world scale'(Friedmann 1993, p. 30). Food regime theory aims to link international food production and consumption to the broader historical transformations of the organization of capitalism. Food regime theory works with a timeline, and proposes the following subsequent regimes:

1. The first food regime: 1870 – 1930s
2. The second food regime: 1950s – 1970s
3. The third (emergent) food regime: late 1980s – ongoing
   (McMichael, 2009)

In what follows, I will outline the basic characteristics of the food system today and its roots in the wider political economy as shown by food regime theorists.

Global scale: colonialism and nation-states

An obvious characteristic of the currently dominant agri-food system is its global reach. In a supermarket in the Netherlands, a consumer can buy avocados from Ecuador every day. And in a supermarket in Colombia, it is possible to buy Thai curry. According to food

regime theory, the foundation of this globality was laid down towards the end of the 19th century through colonialism (Friedmann & McMichael, 1989). The first food regime is also called the colonial food regime: European settlers went to all corners of the world and established monocultural production systems for export to the empire. Most notable was the production of wheat in the American territories for the British empire. In their seminal paper *Agriculture and the State System*, Friedmann and McMichael (1989) argue that this time and place was very important for how the food system would be set up in the future. The colonial food regime allowed for the cementing of industrializing European nation-states. By submitting the populations and transforming their local food systems into large monocultures producing for export, settler states:

> (i) Provisioned the growing European proletariat with wage-foods and
> (ii) became the basis of a new type of trade within a new inter*national* order (Friedmann & McMichael 1989, p.94, original emphasis)

As I will show below, the global character of the agri-food system has deepened, but has changed to such an extent that its most powerful players now transcend the national borders this system once helped to establish.

Monocultures and Fordism

Industrialization of agriculture and food and the development of a system of independent national states helped each other into existence in the period from 1870-1914 (Friedmann & McMichael, 1989). This had an immense impact on society, and one of the developments that came out of this was the rise of Fordism around the turn of the 20th century. Fordism as a term was popularized by Antonio Gramsci, who used it to describe a very highly rationalized form of capitalism, which established mass production and consumption processes, starting in the United States (Bonanno & Constance, 2001). For Gramsci, Fordism was based on its predecessor Taylorism, which attempted to make production processes as efficient as possible. But Fordism for Gramsci also had far-reaching consequences in politics and culture. To make mass production and consumption possible, the whole of society had to be overhauled. Laborers' intelligence and creativity was no longer important in the production process, therefore they were at risk of alienation to their work but were compensated by higher wages that allowed them to consume the products that they made which kept them satisfied. In this way, mass production and consumption sustained each other.

The standardization and mass scale of production and consumption that typify Fordism can still be found in the dominant agri-food system today. Indeed, one of the most striking characteristics of the productionist paradigm is its tendency towards intensification through mechanization and scale enlargement. This means there are fewer farmers, and bigger farms. To optimize efficiency for working with large machines, these farms are usually made of monocultures: they are specialized in growing one type of crop or raising one type of animal. Gliessman (2015) writes that it is typical of an industrial approach to agriculture to result in monocultures, as industrialization strives to increase output per labor unit through the use of more technology-based inputs. Over the last century, food items have become consistently cheaper, while the volume and the value of agricultural food production has steadily grown (Oosterveer, 2005).

Science, corporations and the Green Revolution

Agriculture had become a fully-fledged industrial sector as agricultural products increasingly became processed. The main components of these newly produced foodstuffs were meat, fats and sweeteners. Agricultural specialization and intensification continued, but to make specific crop and animal products into novel manufactured foods, different industries across borders became involved in longer supply chains that were dominated by big capital (Friedmann & McMichael, 1989).

At the same time, decolonization had taken place and there were many new nation-states in the world. These postcolonial states became incorporated in the aforementioned global supply chain, as capitalist markets expanded into their national economies were presented to be vehicles of economic growth and 'modernity' (McMichael, 1996 as cited in McMichael, 2009). This really meant that agribusiness expanded into the former colonies, and they brought with them a package of technologies known as 'Green Revolution technologies'. In the years after World War II, the commitment to increase food supplies was bigger than ever, and the strategy was to apply scientific agricultural inventions (Soby, 2013). The name Green Revolution refers to those inventions. Examples are: 'miracle seeds' or the breeding of high yielding varieties, chemical fertilizers, pesticides, irrigation technologies and more sophisticated machinery (Soby, 2013; J. Thompson et al., 2007). These advances were mostly made possible through funding by the US government and the private Rockefeller and Ford foundations and most of the technologies remained in private hands (J. Thompson et al., 2007). This dynamic created a dependency on patented technologies for millions of farmers, and in the worst cases this dependency has bankrupted the very people that these technologies

were supposed to help (Shiva, 2010). Thus, the rhetoric of national development under which these technologies were being rolled out, was helping to put in place "an internationalization of agribusiness chains of inputs, technologies and foodstuffs, eroding the coherence of national farm sectors"(McMichael 2009, p.146). In the food regime literature this period, roughly from 1950 until 1970, is seen as the second food regime.

Agribusiness vs alternative food networks

The time after 1980 is theorized as a third, emergent food regime, but there exists some discussion in the literature about its characteristics. McMichael (2009) argues that the process described above has been deepened, with more power being in the hands of transnational corporations (TNC). Power has especially concentrated at the level of retailers, which in Europe have up to 90% of the market share in food (Nicholson & Young, 2012). Next to this, today's agri-food system is characterized by a high degree of market power concentration - TNCs have become bigger and fewer (Clapp & Fuchs, 2013). Because they have become so powerful, the corporate governance policies that they adopt have become very influential. For example, the private price and quality standards of supermarkets have an immense impact on the access of producers to the market (Konefal, Mascarenhas, & Hatanaka, 2005).

At the same time, food regime theory points towards a growing interest in local food on the part of consumers, which is evidenced by the mushrooming of different movements such as Slow Food, Community Supported Agriculture and the growth of the organic agriculture sector (McMichael, 2009). These alternative food networks are in tension with the over-arching food system. In this way food regime theory thus point towards changes that are emerging in the agri-food system.

2.4 The social and environmental flaws of the system

Facilitated by links with capitalist developments, the productionist paradigm succeeded in achieving its goal: yields became higher than ever before in history (Lang and Heasman, 2009) However, we are still far away from worldwide food security. The working definition of the FAO for food security is: "Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life"(World Food Summit, 1996). The dominant food system today has unequally divided food security. It has given many

people continuous access to an array of foods that are not native to their area or did not even exist before. Hunger has been reduced, but currently we still have 795 million hungry people (WFP, 2016). These are people that do not have access sufficient caloric energy every day. Furthermore, 2 billion people suffer from micronutrient deficiencies and 1.9 billion people are overweight or obese (Qaim, 2016). It has been argued that it is precisely the way in which the current food system is organized that caused this 'obesity epidemic' (Guthman, 2015)

Meanwhile, for the people that reap the rewards of this system there is more choice of food products than ever, and accessible 24 hours a day, 7 days a week. This convenience has disconnected people from the reality of growing food (Gliessman, 2015). Unfortunately, it is this reality that has become severely problematic in the 21st century.

Above, I have shortly mentioned some of the many socio-economic effects of the productionist system that have worked to the detriment of farmers and rural communities. But the ecological reality that the productionist paradigm has left us with today, is at least as bleak.

The miraculously high yields of the dominant agri-food system are based on a paradox: the way it is designed violates the very foundations of farming. To begin with the system is literally fueled by an addiction to petroleum and other non-renewable energy sources (Gliessman, 2015). Each calorie of food takes about 10 calories of fossil fuel to be produced, and this amounts to our food system being responsible for one-third of global greenhouse gas emissions (Gilbert, 2012; Starrs, 2009). Moreover, the technological packages that have made these incredible yields possible, damage the very resource base that they are dependent on. Some examples are: intensive tillage reduces soil fertility and increases erosion, monocultures rely heavily on the use of chemical pesticides because they are very susceptible to pests and diseases, irrigation uses fresh water at a higher rate than it can be replenished (Gliessman, 2015). Furthermore, the list of harm done to ecosystems all over the world is basically too long to cover in its entirety. For example Kremen, Iles and Bacon (2012, p. 43) write that current agricultural practices are, amongst other things: "creating dead zones in the oceans, destroying biodiverse habitats, releasing toxins into food chains".

In summary, we have a dominant globalized food system that fails to deliver adequate nutrition to all of the world population, destroys the environmental resources upon which it depends and favors the interests of a few powerful corporations over the livelihoods of millions of people. In what follows, I will present an overview on the literature of agroecology, which proposes radically different ways of producing food, and may offer some solutions to the shortcomings of the productionist system.

2.5 Agroecology

The central idea of agroecology is to view an agricultural production system as a modified ecosystem: an agroecosystem. In one of the first textbooks created to teach agroecology, Gliessman (2015, p. 21) writes: "An agroecosystem is a site or integrated region of agricultural production—a farm, for example—understood as an ecosystem. The agroecosystem concept provides a framework with which to analyze food production systems as wholes, including their complex sets of inputs and outputs and the interconnections of their component parts. The concept of the agroecosystem highlights that like any other ecosystem, agricultural production systems are shaped by dynamic processes that strive towards equilibrium of energy and nutrients (Gliessman, 2015). What agroecology aims to do is "[apply] ecological concepts and principles to the design and management of sustainable agro-ecosystems"(Altieri 2014, p. 2). 'Sustainability' is the key quality that agroecologists pursue in managing agroecosystems. For an activity to be sustainable, it has to consider environmental, social and economic dimensions (Hansmann, Mieg, & Frischknecht, 2012).

An agroecological production system not only aims to reduce its dependency on industrial inputs such as chemical fertilizers and pesticides, but goes far beyond this (Rosset & Altieri, 1997). Key to agroecological production is that its systems are designed to fit the local environment, in contrast to Green Revolution models which propose the same one-size-fits-all solutions no matter the ecological conditions. However, there are the following basic guidelines that are given shape according to each context:

> 1. Enhance recycling of biomass and optimizing nutrient availability and balancing nutrient flow.
> 2. Securing favorable soil conditions for plant growth, particularly by managing organic matter and enhancing soil biotic activity.
> 3. Minimizing losses due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover.
> 4. Species and genetic diversification of the agroecosystem in time and space.
> 5. Enhance beneficial biological interactions and synergisms among agrobiodiversity components thus resulting in the promotion of key ecological processes and services.
>
> (Altieri & Nicholls 2005, p. 32)

Agroecology looks different in various places, as there is no one way of implementing it since each distinct environment asks for different solutions. Therefore, the creativity and skills of the farmer are of vital importance to an agroecological production system. Because of this, it is often said that agroecology is people- or knowledge-intensive, instead of technology-intensive, and this holds promises for a revalorization of farm work (Timmermann & Félix, 2015).

Although the basic principles are generally agreed upon, in the academic literature there is an interesting debate about the place of agroecology as a science. Some theorists make the following differentiation; for them agroecology is

1. A scientific discipline involving the holistic study of agro-ecosystems, including human and environmental elements.
2. A set of principles and practices to enhance the resilience and ecological, socio-economic and cultural sustainability of farming systems.
3. A movement seeking a new way of considering agriculture and its relationships with society.
   (Silici 2014, p. 4)

When this three-partite division is made, the beginnings of agroecology as a science are often located in the 1920s, as the first use of the term agroecology is attributed to work that the Russian agronomist Bensin published in 1928. (Silici, 2014; Wezel et al., 2009) At that time, it referred to the application of ecological knowledge to agricultural production. This definition has persisted into the present moment, but the term has come to mean much more. Wezel et al. (2009) place the consolidation of the scientific discipline in the 1970s, when the concept of the agroecosystem was introduced. This understanding of farming systems gained a lot of momentum when the detrimental effects of the Green Revolution started to become clear (Wezel et al. 2009; Silici 2014; Gliessman 2015). Wezel et al. (2009, p. 506) propose that it was at this time that agroecology became a practice: “One of the origins of agroecology as a practice was laid during the 1980s in Latin America. […] Agroecology helped local farmers to improve their indigenous farming practices as an alternative to a high input, chemical-intensive agriculture promoted by international corporations.” Lastly, the origin of the social movement component of agroecology is placed in the 1990s. In the global North, these focused on providing local and organic food, whereas in the global South, rural development and food security were the main focus (Silici, 2014). It

was also around this time that the peasants' movement La Vía Campesina was founded, and coined the term 'food sovereignty', which they defined as follows: "Food sovereignty is the right of each nation to maintain and develop its own capacity to produce its basic foods respecting cultural and productive diversity" (La Vía Campesina, 1996 as cited in Patel 2009, p. 665). This concept was developed because the activists did not accept the concept of 'food security', as it avoids discussing who is in control of the food system (Patel, 2009).

However, there are theorists that do not agree with this three-partite division, nor with the timeline that is proposed above. Some agroecology scientists argue that the three facets cannot be separated, especially not the movement from the science. They argue that those who see agroecology solely as a science present agroecology falsely as a technological fix for the problems of the agri-food system, whereas the real solution lays in changing the social and institutional conditions that support the current agri-food system (Molina, 2013). Therefore, according to these theorists the explicit goal of agroecology should be to transform the food system as a whole. For example, Gliessman (2015, p. xii), writes:

> It became obvious to me as an agroecologist that we needed to expand the scope of the field beyond the growing and eating of food. We needed to find a political voice, align closely with social movements, and focus on developing a grassroots and community-based alternative food system that could grow outward and eventually make the industrial food system obsolete.

Besides the contestation over the political aim of agroecology, there is much to do over the attribution of the development of agroecology to European science. Notably non-European scholars raise this issue. Altieri & Holt-Giménez (2016, p. 2) note:

> Although many northern academics claim that the term Agroecology was first coined by European scientists […] at the beginning of the 20th century, the roots of agroecology lie in the ecological rationale of indigenous and peasant agriculture still prevalent in many parts of the developing world. Thirty years ago, Latin American agroecologists argued that a starting point for new, pro-poor agricultural development strategies were the very systems that traditional farmers had developed over centuries.

Also Gliessman (2015, p. xi) writes about his study of *campesinos* (peasant farmers) in 1970s Mexico: "For centuries, the people of the region had developed, tested, and refined practices that continue to evolve today. […] Working alongside the *campesino* farmers who

managed these systems, we studied their ecological foundations and in the same process the principles of agroecology were born."

2.6 Agroecology, food policy and cognitive justice

The importance of indigenous and farmer knowledge of production systems is acknowledged throughout the agroecology literature (M. A. Altieri & Toledo, 2011; Gliessman, 2015; Gliessman, 2013; Silici, 2014; Wezel et al., 2009), but it is arguably not emphasized enough. There is a danger of erasing indigenous and traditional knowledge when the development of agroecology is presented as linear. Equating the start of agroecology with the first use of the word obscures the centuries of work that was done to create sustainable food production systems by farming communities all over the planet. Agroecology should actively acknowledge and work together with these knowledge producers. In *Farming Matters*, the magazine of Ileia (a platform that aimed to promote agroecology), it is noted that "while scientific knowledge aims to be largely explicit, a lot of relevant knowledge and skill in agriculture is tacit, implicit or hidden in (women) farmers' practices and in their heads" (Milgroom, Bruil et al. 2016, p. 7). This insight remains hardly addressed in the institutional discourse on agriculture in general. The same magazine features an article by researchers from Coventry University, which warns against exactly this. They argue that "mainstream agricultural development has been largely based on scientism [which] ignores or displaces local and indigenous knowledge systems" (Wakeford, Anderson et al. 2016, p. 41). This means that if agroecology aims to fundamentally change the food system, it should be cautious not to repeat this logic.

Agroecology as it is widely formulated today is only a couple of decades old (Wezel et al., 2009), but is receiving increasing recognition and attention from governance institutions that look towards it for possible solutions to the multiple crises in the food policy today (Parmentier, 2014). In policymaking, scientists have for a long time had a special position of power (Weingart, 1999). This position is legitimated by positivism: the idea that there is an objective truth 'out there', which can be uncovered by the scientific method and then be used to build the best possible policy with. The philosopher Kolakowski (1968, as cited in Hajer & Wagenaar, 2003) noted that positivism is not just a set of methodological tools, but very much an attitude towards knowledge, namely one that marginalizes non-empiricist knowledge and makes it look less important or even less true.

Anderson and McLachlan (2015) write about the 'knowledge transfer paradigm'. These dominant ideas in policy-making, underpinned by positivist assumptions, hold that scientists are the sole producers of unbiased expert knowledge. They then transfer this knowledge to 'knowledge users'. In this paradigm, engagement with 'downstream actors' allows for contact with a professional class of 'knowledge users' (such as government officials), but rarely engages with less powerful civil society actors. Positivism and the knowledge transfer paradigm in this way contribute to what can be called epistemic (Fricker, 2007) or cognitive (Visvanathan, 1997) injustice: a process through which "groups and individuals are systematically wronged in their capacity as knowers and as creators of knowledge" (Anderson & McLachlan 2015, p. 297).

This is where the tension lies between scientists and other practitioners in the field of agroecology. In the present moment, the field is receiving a lot of attention from policy-makers, but who is able to speak to and inform these policy-makers? The influence of positivism on not only 'hard science', but also on the social sciences remains. In fact, and importantly for this discussion, Hajer & Wagenaar (2003, p. 6) write that positivism

> does not restrict itself to the conduct of the social sciences, but also […] includes normative beliefs and habits of governance and policymaking. Far from being a strawman, positivism is above all a practice of policymaking that is deeply rooted in the institutions of modern government.

The field of agroecology, with its tension between scientists and other practitioners, and its emergence on the stage of food policy-making, is an interesting case study for looking at the influence that both scientists and non-science actors can have in a policy-arena. As the science of agroecology emphasizes the knowledge coming from practitioners, do the latter also have a say in agroecology policy-making processes? In this thesis, I will discuss the dynamics between agroecology and one policy-making institution in particular: the FAO of the UN.

2.7 The FAO and agroecology

The main goals of the Food and Agriculture Organization (FAO) of the United Nations are: "the eradication of hunger, food insecurity and malnutrition; the elimination of poverty and the driving forward of economic and social progress for all; and, the sustainable management and utilization of natural resources, including land, water, air, climate and

genetic resources for the benefit of present and future generations"(FAO, 2017). To achieve these goals, the FAO supports national governments in policy-making, coordinates between national governments, provides information and has its own development programs (FAO, 2013) The organization "has been able to bring parties together on a global scale and has had a pre-eminence in the definition of world food and agriculture policies" (González 2010, p. 1345).

FAO has been highly influential in the shaping of the productionist agri-food system. Phillips & Ilcan (2003) show how in the post-WWII years, FAO spearheaded the imagination of a global food governance streamlined by scientific management. This imagination is only possible if it is "built upon concepts of universalism, comparability, reliability and value-neutrality" (Phillips and Ilcan 2003, p. 437). Food systems all over the world had to become measurable and calculable for FAO to be able establish its dreamed global food governance. As a prerequisite of this new scientific imagination of global food governance, local knowledge was "appropriated and subjugated" and "theoretically separated […] from the dimensions of culture embodied in producing it" (Phillips and Ilcan 2003, p. 437). FAO was thus very influential in the establishment of the hegemony of positivism and replacement of traditional knowledges and technologies with universal scientific knowledge and technologies. It could thus be said that FAO's attitude towards traditional agricultural knowledge has been the opposite of that of agroecology.

Next to deciding which knowledge about food was valid and useful, and disseminating this type of knowledge, FAO built networks of relationships between governments and public and private organizations. To give shape to global food governance, "new global relations were produced through the FAO: its activities involved restructuring and extending international networks of goods, people and knowledge, and facilitating their passage within national and local spaces" (Phillips and Ilcan 2003, p. 436). Phillips and Ilcan argue that these networks were organized according to Fordist and Taylorist ideas. By combining different aspects of these fields, it became possible to "develop a 'responsible' management of world-wide territory through the large-scale planning of production and consumption networks"(Phillips and Ilcan 2003, p.439). Food and agriculture could thereby be organized like a worldwide assembly-line.

These strategies have helped to put in place the agri-food system as we know it today. It has especially benefitted the agri-food TNCs that now dominate. However, recent developments within FAO show to some degree the organization is becoming interested in alternatives. A good example of this are the Symposiums on Agroecology that have been

organized since 2014. The current Director-General, the Brazilian José Graziano Da Silva, has been active in spreading the idea that agroecology could offer solutions to the current problems. The first of the symposiums was held in Rome in 2014 at the FAO's headquarters. In the Foreword to the proceedings document of the symposium, Da Silva writes:

> Agroecology offers the possibility of win-win solutions. By building synergies, agroecology can increase food production and food and nutrition security while restoring the ecosystem services and biodiversity that are essential for sustainable agricultural production. I firmly believe that agroecology can play an important role in building resilience and adapting to climate change. (FAO 2015, p. xi)

After the first symposium, which featured contributions from all over the world, it was decided that every region should have its own session. So far there have been meetings in Latin America, Asia, Africa and Europe.

In conclusion, the FAO has partially helped create the food system that exists today and is causing many problems. This food system is shaped by a primacy of universal scientific knowledge over local farmer- and community-driven knowledges. Now FAO is looking to agroecology for solutions, which could possibly entail a revaluation of the latter forms of knowledge. At the FAOs symposiums for agroecology, do non-scientific actors get a voice?

3. Research questions

The FAO is currently searching for answers and policy proposals the address the crises of global food policy, and is turning to agroecology. Meanwhile, there are many different representations of agroecology. What we do not know, is which of these representations actually informs the decision-making process at the FAO. Therefore, the central research question of this thesis will be:

What discourses about agroecology are informing the global governance of agroecology?

As a case study of the global governance of agroecology I will specifically focus on the European symposium on Agroecology that FAO organized as part of a commitment to regional consultation following the first international seminar. I formulated the following sub questions to aide me in the process of finding the answer to the central question:

1. How is the FAO symposium constructed as a participation-science-policy interface?

As I will show, modern policy-making is often an encounter of actors from multiple social backgrounds. I propose concept of a participation-science-policy interface (PSPI) to make sense of this.

2. How do different actors in this interface represent different discourses of agroecology?

I answer this through discourse analysis of the participants' interventions at the symposium.

3. Does the construction of the interface allow the co-production of knowledge to take place?

Co-production of knowledge is another theoretical concept that I will use together with the PSPI.

4. What kind of discourse eventually informs policy-making?

After the discourse analysis, I looked at which discourse had the most influence on the policy recommendations of the symposium. The conclusion of my analysis is that the these recommendations were not a balanced reflection of all discourses, but that the recommendations document favored a particular kind of discourse.

The relevance of these questions to the existing literature lies not only in their value to the discipline of agroecology, but also in that they provide a look inside modern policy-making processes. These questions are of immediate interest to the field of agroecology because it is experiencing increasing interest from policy-makers. To see what discourses on agroecology are taking front and center stage in the policy-arena, provides a chance to reflect on the direction agroecology is taking. Furthermore, these questions are an investigation into how governance processes as a whole are taking place. In last decades, the dynamics of governance processes have changed significantly. In the following part of my thesis I outline my theoretical framework, which consists of literature on governance and civil society participation.

4. Theoretical framework

4.1 Introduction

In this section, I give an overview of the theories that I have used to inform the concept of the PSPI. First, I outline the context of the theoretical and empirical shift from government to governance. I will briefly touch upon the relationship between governance and neoliberalism. This is essential to understand any decision-making processes going on at the present time, as in de 21st century, we are "witnessing the unchallenged hegemony" (Mouffe 2005, p. 31) of neoliberalism. Then, I will review the literature on the concept of the science-policy interface (SPI) made visual by the Multi-actor Perspective, and finally I will explain the notion of co-production, which is a key concept in this thesis.

4.2 From government to governance

The classical European liberal democracy was fashioned on the idea that society consists of three interdependent components: state, market and civil society. The state: the government, a collection of institutions with the authority to organize social relationships. The market: the domain of all capitalist economic transactions. In describing the relationship between these two, Swyngedouw (2005) paraphrases Jessop to say that "'state' is capitalism's necessary 'other'" (p. 1994), which means that economic transactions are shaped by rules and institutions made by the state. These intertwined sectors are in turn heavily dependent on the third leg of the liberal democratic social order: the civil society. This is the collective name for all private actors that do not belong to either market or state. Civil society is where we group non-governmental organizations and interest groups, but it is also the domain of the individual citizen. Citizenship is a core concept to national liberal democracies, a concept "encapsulating the relationship between the individual, state and society"(Yuval-Davis 1997, p.4). The citizen's rights to influence the state's policies through representational democracy are regulated through formal laws, and thereby the state receives legitimacy for those policies. Civil society is seen as the locus of germination of social transformation and where hegemony is contested and struggled over. It cannot be understood independent of its relations with both market and state; of the extent to which it can control the state's decision-making, and of the extent to which it can control the resources for accumulation (Swyngedouw, 2005).

At the end of the 20th century, the shift from the study of government to the study of governance occurred: political theorists started to adopt a very different vocabulary than was

previously used to describe the policy-making sphere (Lievens, 2015). Since the 1990s, many theorists from different fields have worked to show that this new language indeed is more apt to describe the current organization of power in society, and not just a new trend in vocabulary (Hajer & Wagenaar, 2003). Traditionally, decision-making by 'government' is understood, in short, to be a model in which authority is exercised top-down by a state over a territory, based on a legitimacy derived from accountability to their citizens (Fischer, 2000). In contrast, 'governance' is a process through which society is governed by decentralized constellations consisting of parts of a state apparatus working together with a broad network of actors, often only coming together to tackle a specific issue (Lievens, 2015). However, this binary representation of governing has been criticized, and it has been pointed out that the reality is closer to a hybrid form of both these organizational methods (Whitehead, 2003).

The notion of governance emerged from a place of disillusionment with the efficiency of states, and a need for more flexible problem-solving arrangements (Grote & Gbikpi, 2002). Swyngedouw (2005) characterizes governance as "governance-beyond-the-state", which he describes as "apparently horizontally organized and polycentric ensembles in which power is dispersed" (p. 1992, original emphasis). These ensembles can be informal and include actors that do not belong to government institutions . The consequences of this shift for the organization of democracy have been described by different authors in more positive or more negative terms. Despite the lack of consensus across the literature, there is agreement that as governing and the decision-making process are no longer just the domain of state officials, market and civil society actors are welcomed by the state into temporary arrangements focused on particular issues, which blurs the lines between the different sectors (Stoker, 1998).

Some say that this new permeability can revive the democratic legitimacy of decision-making. These new formations, which allow authority to be negotiated, recognize the agency of actors (organizations and individuals) outside of the traditional formal government structures (Eversole, 2011). Some writers are optimistic that government institutions based in representational democracy are no longer the sole decisionmakers, but the facilitators of the decision-making process. In the introductory chapter of the book *Participatory Governance: Political and Societal Implications* (2002), aptly called "From Democratic Government to Participatory Governance", Grote and Gbikpi explain why. The core idea of this book is that:

> the more relevant participants are incorporated within/associated with a policy-making process, the greater the chance that the measures taken will be voluntarily accepted

> and effectively implemented, and hence, the greater the expectation that the policies agreed on will be sustainable. (Grote & Gbikpi 2002, p.18)

They note that for the success of a participatory governance process the two most critical choices are: who can participate and what are the decision-making rules. Regarding the former, they state that persons or organizations should be invited to participate depending on their relevance to the decision at hand. In the same book, Schmitter (2002) argues that this type of governing can enhance the quality of decision-making in three ways:

> (1) they enhance the opportunities for mutual accommodation through exchanges of reasoned arguments; (2) they serve to generate higher levels of trust among those who participate and this, in turn (3) allows them to introduce a longer time-horizon into their calculations since sacrifices and losses in the present can be more reliably recuperated in future decisions (Grote & Gbikpi 2002, p. 21)

However, "who can participate" is exactly the main question of critics of governance. Swyngedouw (2005) points out that in comparison to 'governing as we knew it' (liberal democracy as it has been established through the 19th and 20th centuries in Europe), governance is young and does not have clearly established rules for how decision-making should take place or who should be involved in the process. The state, far from being removed from governance as is the common perception, plays a central role in the formation of such ensembles. Therefore, governance can lead to a more autocratic mode of governing. Government institutions have the power to pick and choose the actors that they want to be involved in the decision-making process on a specific topic (Swyngedouw, 2005).

Authors that criticize this development are often also very critical of neoliberalism, a philosophy of government organization that has risen to prominence together with governance as a governing style. In the words of Harvey (2005, p. 2), this philosophy is:

> a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade. The role of the state is to create an institutional framework appropriate to such practices.

The technique of ad hoc shaping of coalitions of actors that characterizes governance, fits well with the ideology of neoliberalism. This new relationship between civil society and the state under neoliberalism is adequately put into words by Lemke (2001, p. 202):

> The neoliberal agenda for the 'withdrawal of the state' can be deciphered as a technique for government. […] It therefore lead[s] less to the state losing powers of regulation and control and can instead be construed as a reorganization or restructuring of government techniques, shifting the regulatory competence of the state onto 'responsible' and 'rational' individuals. [Thereby] 'supplying' individuals and collectives with the possibility of actively participating in the solution of specific matters and problems which had hitherto been the domain of state agencies specifically empowered to undertake such tasks. This participation has a 'price tag': the individuals themselves have to assume responsibility for these activities and the possible failure thereof.

Another contribution from this critical body of work is that the price of responsibility cannot always be paid by everyone. People may not have the social capital to know how to get involved in government procedures, prohibiting them from (what neoliberalism calls) assuming responsibility. For example, Swyngedouw, Moulaert, & Rodriguez (2002)have found that in urban governance processes, participating actors are usually members of the existing social élites. Importantly, Gerometta, Häussermann, & Longo (2005) point out that civil society cannot be seen as a homogenous unity, and that as inequality characterizes any society, this inequality can be reproduced by civil society's actions. They note therefore that to solely rely on civil society would not necessarily bring about improvement, but just result in the reproduction of the relationships of power within that civil society.

Furthermore, neoliberal governance processes have been described as having depoliticizing tendencies (Duncan, 2016). According to Mouffe (2005), antagonism and conflict is inherent in human societies: this is called 'the political'. The institutions that society has to achieve coexistence of people with diverging opinions are collectively called 'politics'. Depoliticization takes place when in governance processes attempts are made to negate the political, because of the belief that a rational consensus can always be achieved (Mouffe, 2005). The totality of mechanisms that work towards this goal are seen as constitutive of the post-political condition (Swyngedouw, 2010). Examples of such mechanisms are:

1. A push towards technocratic processes
2. A push for consensus building
3. The embedded reality of neoliberalism

   (Duncan, 2016)

When technocratic processes are being pushed, this can mean that there is a call for more and more scientific evidence. The problem in these cases is not a lack of evidence, but a lack of agreement around the evidence. It is then not acknowledged that selecting evidence for policy is in fact a political act, which gives the false impression that there is one objectively best choice to be made (Duncan, 2016). Consensus is built through the use of concepts such as 'sustainability'. Such a concept does not generate antagonistic responses: no one is against it. This 'consensus framing'(Duncan, 2016) erases possible dimensions of conflict that could arise from discussions about how exactly this sustainability will be achieved, for example. The embeddedness of neoliberalism is the acceptance of neoliberal ideas and a market economy as the basis upon which the social and economic order are built. It also entails the negation of taking alternative ideas as the basis for the organization of society. When a governance process is marked by such characteristics, it undermines democracy.

In summary, the benefits and disadvantages of governance depend on the way participation is given shape within a particular governance process. Participatory governance can benefit democracy, but can also be a tool of neoliberalism that in fact diminishes democratic legitimacy of decision-making. It all depends on who participates and how this participation is regulated. As there is no inherent "good" or "bad" in the concept of governance, we need a way to assess the way participation is shaped in a given governance constellation, to pass judgment on the functioning of said constellation. In what follows, I will develop a way to do so.

4.2 Assessing governance constellations: the SPI

As we have seen, permeability of governance can have beneficial or detrimental effects on the democratic legitimacy of policy, depending on which actors are involved. The first thing to do in order to analyze a governance constellation is to make the actors visible. In the Multi-actor Perspective (MaP) developed by Avelino and Wittmayer (2015), the three foundational components (market, state and civil society) of the democratic nation-state are called sectors. The MaP provides a useful starting point for typologizing the different actors involved in contemporary decision-making processes, by organizing them according to the

sector to which they belong. It also provides a helpful visual that shows how the different sectors relate to each other and overlap (see fig. 1).

Another strong point of this work, which is based on the Welfare Mix model by Evers and Laville (2004), is the development of the concept of the 'Third Sector'. Avelino and Wittmayer rightly point out that it is problematic "to use the category of 'civil society' to stand for everything that is not market nor government" (2015, p. 630). In their work, the Third Sector encompasses everything that falls in between the axes formal-informal, public-private, and profit-nonprofit. The Third Sector concept can thus be applied to everything that is neither state, nor market, nor community or to those individuals and organizations that cross boundaries between the sectors. Another strong point of the model therefore is that it shows the relationships between and entanglement of the different sectors.

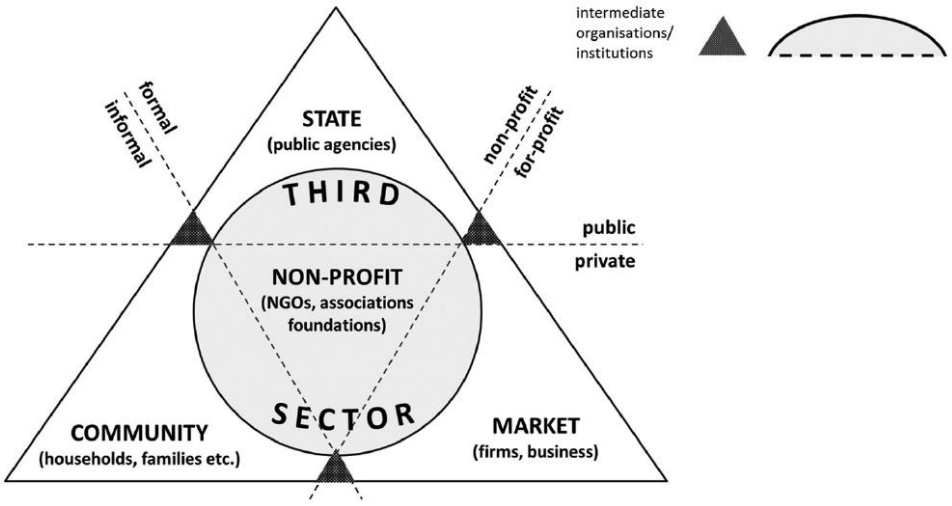

Figure 1: MaP level of sectors in society, source: Avelino & Wittmayer (2015)

Often, the policy-making process is approached as a science-policy interface (SPI) (some examples are: Huitema & Turnhout, 2009; Sluijs, 2005; I. D. Thompson, 2017; Wesselink, Buchanan, Georgiadou, & Turnhout, 2013). The model of the SPI is based on the idea that science plays an advisory role in policy-making. Weingart (1999) explains how governing used to be seen as a matter between science and state. He recounts how the first science advisory structure was set up in post-war United States, and how it was heavily criticized at the time for its lack of political accountability. However, other voices hailed the development as "the end of ideology". The relationship between science and policy was modelled so that there was a strict separation between 'objective scientists' and 'subjective politicians'. This meant that if policy equals problem-solving, there must be a singular best

solution. This science-policy model is in line with a theory of decision-making that has been called 'speaking truth to power', according to which science develops objective knowledge which then leads to action in the political arena (Jasanoff & Wynne, 1998). According to Avelino & Wittmayer, science "can be seen as a '*sub*-sector' of the Third Sector, that is, an intermediary sub-sector between state, market and community, crossing the boundaries between private and public, for-profit and non-profit"(2016, p. 635). When visualized in the MaP, the SPI looks like figure 2.

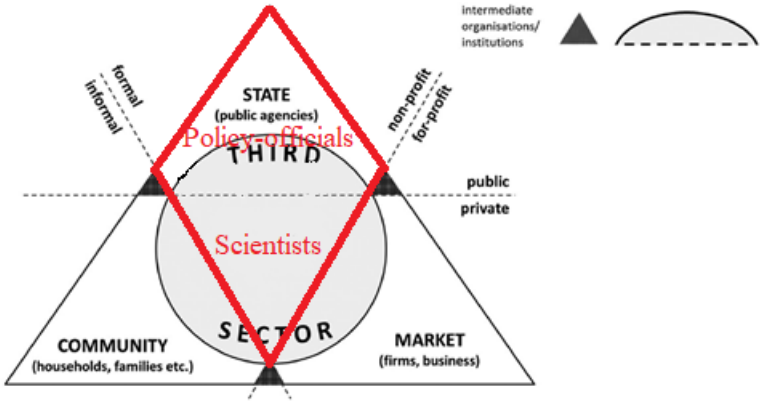

Figure 2: MaP visual of the SPI model with actors in red

I argue that the SPI does not accurately represent modern governance processes, for two reasons. The first is that as we have seen, governance is a process between multiple parties from different sectors. The second reason is that in the minds of the people taking part in decision-making, the SPI is often conflated with the linear model of expertise that is the 'speaking truth to power' model (Beck, 2010). However, the assumptions on which this model is built, have been proven wrong. This means that the 'speaking truth to power' model of decision-making is also wrong. Weingart (1999) explains that the 'speaking truth to power' model relies on three basic assumptions:

- the linear sequence of (political) problem definition, (expert) advice and (political) decision;
- the value freedom of scientific knowledge; and
- the disinterestedness or political neutrality of scientists" (Weingart 1999, p. 154)

The first assumption presupposes distinct divisions between scientists and policy-makers. The idea is that politicians (seen as subjective) formulate a policy question and in

order to answer this question ask for (objective) scientific advice. On the basis of this advice they then make a policy decision. Often however, it is difficult to distinguish clear boundaries between science and policy in the process of policy advice production (Wesselink et al., 2013). Often, scientists are part of the problem-formulation phase, which means that they have a big influence in political agenda-setting (Weingart, 1999).

The second assumption is basically the definition of positivism: the idea that scientific knowledge is completely objective and unbiased, and therefore 'the most truthful'. As will be shown in a moment, as I introduce boundary-work and co-production theory, scientific work is in fact highly dependent on the social environment is grown in.

The third assumption states that also the scientist as a person is completely free from subjective values. In this model, as an advice giver, the scientist is a sort of robot that generates objective truths and stays outside of the political decision-making process that follows after. Weingart (1999) notes that there have been many cases in which scientists have chosen opposing sides, either because they chose to advocate one specific position or because of reasons of self-interest. The second and third assumption have been discredited by for example Bruno Latour (1987) (and many others after him), who showed through ethnographic research the many ways in which 'hard science' depends on social context in ways that do not strictly conform to the objective logic of science.

In what follows, I will develop the concept of the participation-science-policy interface (PSPI). I propose that this is a more accurate model of decision-making because it accounts for the participation of non-science and non-state actors. Furthermore, it does not rely on the assumptions that have been discredited above. Instead, it works from the assumption that science is but one of many types of knowledges that can contribute to decision-making processes.

4.3 Assessing governance constellations: the PSPI

The PSPI extends the concept of the SPI to include participation as a third factor in the decision making interface, next to scientists and policy-officials. The goal of the PSPI is to be able to more adequately account for the participation of actors from all different societal sectors (state, market, community and the third sector) in policy-making processes. Opening up the analysis to participation from non-science and non-state actors, first of all gives a more accurate portrayal of governance processes. Secondly, it allows for a description of the power distribution between the different actors, and thirdly, it allows for a normative analysis of this

power distribution. As was said before, governance constellations can be ‘good’ or ‘bad’ in terms of their democratic legitimacy. The concept of the PSPI can help to determine which is which. The ideal-type of a PSPI would be a governance constellation in which democratic legitimacy is safeguarded by an equal representation of actors that would be affected by the decision to be made.

In this thesis, I focus mostly on participation from civil society actors. The market is barely touched upon, because market actors played no role in the governance constellation that is used as case study. In the context of this thesis, I take participation to mean civil society participation. As described before: citizens are individuals with rights and duties bestowed upon them by the nation-state collective that they are a part of. The citizen is who gives meaning to democracy by his or her participation and deliberation (Fischer, 2000). The basis of democratic theory is the idea that it is legitimate for people to want to have a say in decisions that affect them, which is a normative value (Eversole, 2011). It is therefore understood from a normative democratic perspective that participation should adequately reflect all of civil society’s needs and wishes for a democratic legitimation of decisions. Assessing governance constellations as a PSPI opens up the possibility of assessing whether this baseline for good governance is met.

To conceptualize ‘participation’ in these policy spaces, not only do I choose to talk about citizens because it fits with democracy theory, but also because I want to avoid talking about consumers. ‘Consumers’ can express agency only through (not) buying goods, whereas ‘citizens’ have rights and responsibilities that extend far beyond their options for spending money. With the topic of this thesis being food and agriculture governance, the notion of citizen is especially important, as ‘food citizen’ has recently become a more and more popular term to describe a growing group of people that want to exercise more agency over their food supply (Wilkins, 2005).

Including participation as a third leg in the model of decision-making processes upgrades citizens from being passive end users to becoming actors in the forming of policy decisions. Next to this, I want to emphasize citizens as holders of experiential knowledge of what it means to live with the reality of policy decisions, and thus worthy of inclusion in the scientific and governance endeavor. This means that to fully realize participation, not only will our way of making policy have to change, but also the way we do science.The position from which I approach the PSPI is that ideas about policy-making that are called the “speaking-truth-to-power” model or the “knowledge-transfer paradigm” do not do justice to the capacity of citizens to contribute to policy-making and thereby leave a lot of potential for

better decision-making untapped. In what follows, I will outline theories that support this stance.

4.4 Co-production of knowledge

As was discussed before, science holds a position of power in policy making that is rooted in positivism: the idea that an objective truth can be uncovered by the scientific method. This results in a situation called "speaking truth to power" or "knowledge transfer paradigm", in which scientists are thought to be the only producers of 'real knowledge'. Before, I outlined how the assumptions on which these ideas rest have been proven wrong. In this section, I will introduce two bodies of theory that show that the separation of science and other types of knowledge (and thus science's primacy) is not as justified as is taken to be. I derive from them not only a further substantiation of the analytical value of the PSPI, but I also use them to argue that participation should normatively be a part of decision-making.

The 'speaking truth to power' model and its positivist underpinning have been critiqued heavily by two bodies of theory: boundary-work and co-production theory. The theory of boundary-work "articulate[s] the relationships between "science" and "non science", highlighting the different language, goals, epistemologies and culture found across science, policy and practice" (Wyborn 2015, p. 293). It was first developed in the eighties, when Gieryn, (1983)showed that science actively produces boundaries to establish what 'counts as' science and what does not. Thus, to validate its claim to credibility, science needs to constantly define itself against what it is not. Gieryn's founding theory of boundary-work was based on the assertion that this differentiation does not come from characteristics inherent to scientific disciplines. In fact, those defining characteristics are continuously produced. This insight shows that scientific knowledge is a process – continually being shaped – rather than a monolith.

Star and Griesemer (1989)introduced the concept of the 'boundary object', which lead to a refocusing of boundary-work theories: to approach the boundaries that science puts up not as walls, but as the loci where different kinds of knowledge communicate. Rather than investigating the separation of different knowledge production systems, this body of work shows for example "mediation and translation between the different social worlds of science, policy and practice" (Wyborn 2015, p. 294). Boundary objects are physical objects or concepts that have different meanings on either side of the social boundary, but are recognized by both parties. Guston (2001, p. 400) uses the example of a patent "that can be

used simultaneously by a scientist […] for commercial gain [or] for a politician to measure the productivity of research." Through this conceptualization of the interaction between science and policy, the meeting point of the two finally becomes a science-policy *interface*, rather than the endpoint of the linear structure envisioned by the 'speaking truth to power'-theorists. This opens up the possibility to analyze normatively the different communication processes going on at the science-policy interface.

> The boundaries between science and policy are contested even more by the theory of co-production, which has also come to take two different paths. The theory was developed by Jasanoff (2004) and presents a deep reflection on the entanglement of (scientific) knowledge and social orders. In the introduction of the book States of Knowledge, Jasanoff (2004, p. 2-3, original emphasis) writes:
>
> Society cannot function without knowledge any more than knowledge can exists without appropriate social supports. Scientific knowledge, in particular, is not a transcendent mirror of reality. It both embeds and is embedded in social practices, identities, norms, conventions, discourses, instruments and institutions – in short, in all the building blocks of what we term the *social*.

Co-production states that natural and social orders are co-producing each other. For co-production theory, there is no separation between how we see nature, and the culture that produces this vision of nature. Facts and objectivity are simultaneously produced by and help to produce values and politics. Based on these insights, co-production theory has been used in recent years to specifically analyze dynamics in the science-policy arena.

The focus of this type of co-production theory has shifted to the co-production of knowledge between different actors. It has taken an instrumental approach to achieve the goal of "motivate[ing] a reconfiguration of the interactions between science, policy and practice"(Wyborn 2015, p. 294). It proposes that there should be greater interaction between individuals from different backgrounds ('knowledge producers' and 'knowledge users') in the decision-making process. In fact, the key assumption of this framework is "that there should be no a priori assumption about which actors are knowledge producers and which are knowledge users" (Muñoz-Erickson 2014, p. 184) This is the basis of the argument that policy-making processes should be open to influences from non-state or non-science actors (e.g. citizens), and therefore to different knowledge practices.

If decision-making would be opened up to citizen participation, there are better chances of co-production of knowledge happening. This would lead to better decision-making in the following ways. First of all, because of the shift from government to governance, gaps emerged in the legitimacy of policy-making. As discussed before, the benefits of the new informal governance arrangements are reaped mostly by those who already have a privileged position in society. Inviting minority groups to the table could mitigate the power imbalance, but also lend greater legitimacy to the policy at hand. If it is true that in governance not all actors in the decision-making process are representing a democratically shaped government apparatus, there is a need to reinforce democratic accountability by encouraging citizen participation to ensure that the policies produced indeed benefit the majority of society.

Secondly, and to summarize what has been said before, neither scientific experts, nor government officials have the absolute answer to societal problems. Scientific advice itself comes into existence through a certain social paradigm. As Fischer (2000, p. 41) writes: "At best, policy advice is an informed opinion." As he himself acknowledges, this is not equally as much the case for all policy problems. But each expert opinion must be balanced by a 'lay' opinion, to account for the inherent social assumptions underpinning technical solutions and to come to a more holistic conclusion. To quote Fischer:

> In the ''real world'' of public policy there is no such thing as a purely technical decision. To be sure, all policies have a technical component (some being much more technical than others). Nor can there be any doubt about the need for technical information about what works and what doesn't. But none of this should blur the more fundamental fact: policies are first and foremost social and political constructions. As a uniquely normative entity, a policy decision—like social decisions generally—is constructed around sets of normative understandings and the ways of life of which they are part. (Fischer 2000, p. 43)

Accepting that there is no neutral knowledge means accepting a myriad of knowledges that must all be heard for the decision-making process to be balanced.

Thirdly, besides the argument of cognitive justice, there is the plain opportunistic argument that lay knowledge can provide a wealth of information that otherwise goes unnoticed. In many cases, lay knowledge has greatly complemented scientific enquiry (Bäckstrand, 2004; Ottinger, 2010). In questions of global scale, such as climate change, 'universal' knowledge must be paired with local insights to produce fitting solutions.

Fourthly, many of today's political questions are characterized by a high degree of complexity. So much so that science cannot provide absolute certainty, even in cases that are very technical in nature. This is especially the case in environmental questions. Bäckstrand (2004, p. 32) calls this "post-normal science", a concept which "captures issues defined by high decision stakes, large system uncertainties and intense value disputes". Questions surrounding the food system display exactly these qualities. To answer these types of questions, participation becomes the substitute for scientific certainty. Since no one person or institution can give the right answer, the answer should come about through political deliberation. As Bäckstrand writes: "In light of non-remedial scientific uncertainties, ecological vulnerability and irreversibility, the policy process should be open, transparent and institutionalize self-reflection." (2004, p. 32)

The ideal-type of a PSPI is thus a governance constellation that fosters an environment in which co-production of knowledge can take place. In the case study, I determine whether or not the FAO's European symposium created such an environment. In the next section, I explain how I approach analyzing the co-production of knowledge through discourse analysis.

4.5 The PSPI and co-production as normative and analytical tools

The goal of the PSPI is to be able to more adequately account for the participation of actors in policy-making processes, how these actors might co-produce knowledge, and how the consequences of such collaboration play out in policy-making. To reimagine policy spaces as PSPI's implies a normative outlook on decision-making processes. It would mean that the state as facilitator of these processes should ensure that representatives of different groups of citizens affected by the decision-to-be-made are involved. This is exactly in line with what the instrumental line of co-production theory proposes. What constitutes meaningful citizen participation however is difficult to qualify in the abstract, and should be assessed per case (Bäckstrand, 2004). In this thesis I use the PSPI as a mapping tool to describe the dynamics between the actors in governance-processes, and the central concern in this analysis is the way a process does or does not accommodate the co-production of knowledge between actors.

A limitation of co-production theory is that it actually never defines what knowledge *is.* As a concept, knowledge is rather elusive and intangible. Van Dijk (2000) provides some useful insights into what we do know about knowledge. It belongs at once to the individual mind and to the collective. It is fundamentally social, because if it was not shared it would be nothing more than a personal belief. Knowledge is conveyed through discourse in writing and

speech. As Van Dijk (2000, p. 92) writes: “discourses are in many respects icebergs of which only the most relevant information is expressed as meaning.”

If a discourse is the expression of a certain type of knowledge, I can use this discourse to analyze the knowledge it should express. I will thus approach co-production of knowledge by seeing how people that express different discourses interact. If an interaction between two different discourses would co-produce a new discourse, and we accept that discourse is the expression of knowledge, then we could say that new knowledge is co-produced. I also understand discourses as both illustrative and constitutive of social reality. With this I mean that: “desires, imaginaries, ideologies and metaphors work to produce textual products that both reflect and shape relations of power” (Neumann, 2005 as cited in Buchanan, 2013). It is important to emphasize the power dimensions of discourses because hegemonic discourses can strive to ban voices of dissent from decision-making processes, which is directly against the interests of democracy (Wesselink et al., 2013).

In the literature on co-production, it is an accepted method to use discourse as indicative of knowledge. Researchers analyze the perspectives and values expressed by participants, from which they then reconstruct the discourse disclosed by the participants (Buchanan, 2013; Muñoz-Erickson, 2014; Wyborn, 2015a, 2015b). Their work is “to make explicit what is implicit” (Willems, 2014).

Jasanoffian co-production, as mentioned, focusses on how macro-knowledges of nature and society co-produce each other. I will be informed by this endeavor, but will be guided more by the second strand of co-production theory, which aims to map how actors across sectors are able to co-produce knowledge together in a particular governance setting. I think this strand of research is particularly suitable for the analysis of temporary governance constellations formed around a specific topic. In what follows, I will explain exactly what governance constellation will be the focus of this research.

4.6 Participation at the Regional Symposium on Agroecology for Sustainable Agriculture and Food Systems for Europe and Central Asia

In the rest of this thesis I will analyze the European Symposium on Agroecology as a case study of a PSPI in global agri-food policy-making. I am interested in this meeting because of the ‘trendsetting’ role of FAO. That the world’s biggest public food organization is organizing special events to discuss agroecology is telling about the momentum the discipline is gaining. Being promoted by FAO could significantly increase agroecology’s chances of

making changes to the food system. Firstly, because the platform might help the discipline to reach a larger audience. Secondly, it might lead to a more favorable policy landscape for agroecology. At the moment there are many institutional mechanisms, such as subsidies, in place that make it hard for agroecological producers to compete with their industrially farming counterparts (Silici, 2014).

Invited to speak at the European symposium were not only policy officials and scientists, but also farmers and representatives from civil society organizations. The FAO is an important organization because it is one of the few public institutions that can have global impact on the food system. Unlike TNCs, the FAO's legitimacy relies on its public accountability. For this reason, it is one of the only big institutions that potentially would want to lend its ear to the voices of civil society. Phillips and Ilcan (2003, p. 435) write:

> While the FAO may not have always welcomed public participation in practice, its authority and ability to intervene is derived from and ultimately limited by the desires of its membership - the member states that form the basis of the organization. This distinction of the possibility of civic participation is important if we are to re-think the production and distribution of food beyond TNCs and beyond nation-states.

For clarity on how I perceive the way these actors relate to each other, I have included a modified Multi-actor Perspective model below in figure 2. Although I recognize that no model represents reality in a completely correct way, I want to point out a limitation of the MaP model. The concept of the Third Sector obscures power imbalances between the actors that it encompasses. For example, the Third Sector is used to capture the position universities and civil society organizations (CSOs) at the same time, while there exists a clear power imbalance between the two in situations of decision-making. As explained, an important part of my argument for the PSPI revolves around this power imbalance.

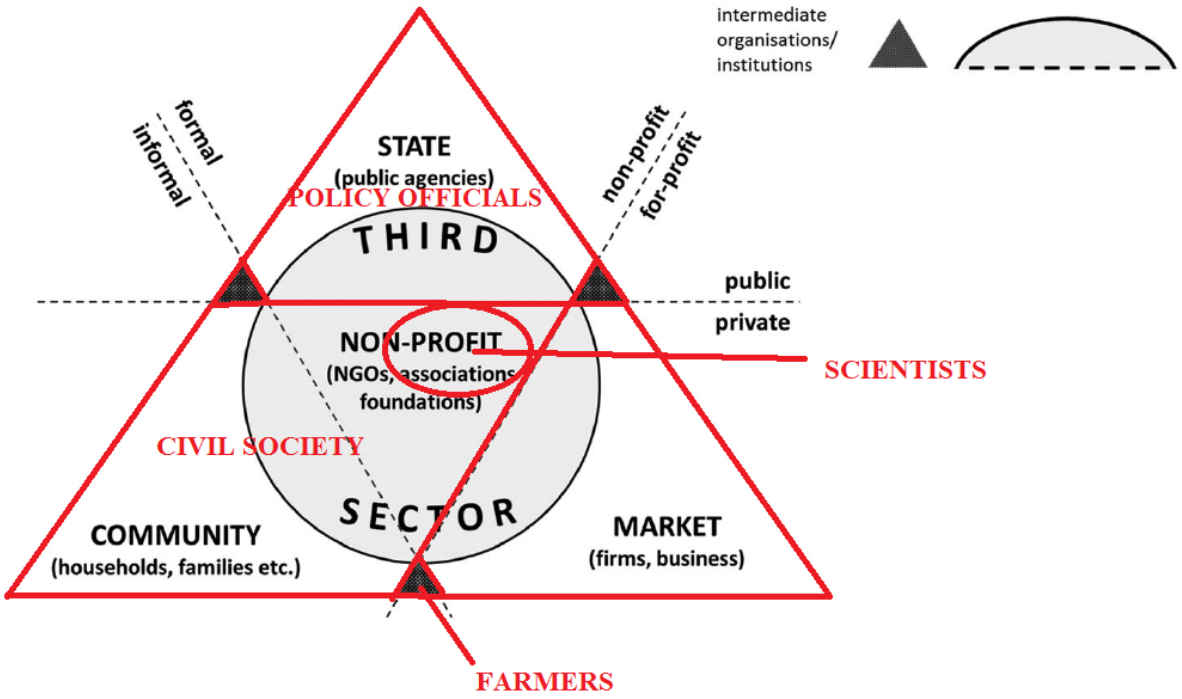

Figure 3: Actors at the symposium in the MaP visual

Because of the invisibility of this power imbalance, the Third Sector is not a useful concept for my analysis. I will distinguish between 'science' and 'civil society' as different sectors. When I refer to the participation of civil society, I mean the participation of 'community + CSOs', as can be seen in figure 2. Scientists are shown as a sub-sector of the Third Sector, in accordance with MaP theory. Because Furthermore, I conceptualize farmers to not be fully market sector actors, because the farmers in this case study take on many non-economic tasks. For example, they take care of the biodiversity on their farm, for which they are not remunerated. They thus do not only act out of economic considerations, but also out of concern for 'the common good'.

The data analysis focuses on the interaction between these groups. However, I need to shortly discuss some other features of the symposium, namely: the structure of the event itself. These features were not central to my analysis, but need to be mentioned as they potentially have a large impact on the results of the symposium.

First of all, it was impossible to obtain any information from FAO about its reasons for the selection process of invited presenters. This selection process is of enormous influence on which voices get to be heard at the symposium. As Grote & Gbikpi (2002) note, who is allowed to participate in governance processes is of critical importance to the outcome of said process. For example, there was an underrepresentation of eaters. The citizens that were

present at the symposium were either producers or CSO-representatives. Most of the topics of the symposium were about production issues, which misses the connection to the other end of the supply chain. The issues of how to make agroecological food accessible to more people were barely addressed. Without a connection to the people who are going to eat the food, how can you scale up agroecological production methods?

Secondly, there was an overrepresentation of certain countries at the symposium. Most notably France was overrepresented. Why was this the case and what effects does this have on the symposium's outcomes? These are questions that could yield interesting answers.

5. Research methodology

5.1 Introduction

In this section, firstly I introduce my data selection process. Furthermore, I explain the logic behind the ordering of the research subjects, and finally how my codes came into being.

The FAO Regional Symposium on Agroecology for Sustainable Agriculture and Food Systems For Europe and Central Asia took place in Budapest, Hungary from the 23rd to the 25th of November 2016. I chose to analyze this event for two reasons. First, it is an example of a contemporary governance process, in which civil society actors, government officials and scientists come together to formulate policy proposals. Secondly, I am interested in agroecology as an alternative to the dominant agro-food system, and want to know how different actors represent different discourses of agroecology. This event is therefore a perfect case study.

I had access to a video recording of the whole conference that was shared by FAO on YouTube. A large part of the symposium was reserved for presentations by different speakers. At the start of the symposium there was a 'high level panel session', with four speeches from important people in FAO and the European commission. The rest of the symposium was made up of six modules with distinct themes, each with their own presentations. At the end of each module there was room for discussion and questions from the audience. I analyzed the presentations and the discussions through coding. Each person with speaking time became an object of study. My selection method thus, was simply to include everyone that spoke at the symposium.

I grouped the speakers in three groups: participants, scientists and government officials. The participants in turn, I divided into two groups: farmers and CSO-representatives. I set out to code the data to find answers to two questions: 1) How does each group characterize agroecology? 2) What kind of recommendations does each group deliver for the scaling up and out of agroecology? The coding was therefore divided into two categories: 'characterizing agroecology' and 'recommendations'. Below, you can find the codes according to each category:

- Characterizing agroecology
    - Scale
        - Local
        - Regional
        - Global

    - Style
        - Technical (incremental)
        - Socio-cultural (transformational)

- Recommendations
    - Paradigm shift
        - Research and education
        - Changing public discourse
    - Market
        - Regulated market
        - Free market

Coding was done with the program NVIVO Pro 11, in which I was able to code on the video recordings themselves, instead of having to make a transcription of the whole symposium. I started coding relatively loosely, meaning that I had far too many codes in the beginning. When I began to see how some codes could be collapsed into each other to form new and comprehensive ones, I worked to reduce my amount of codes and finally was left with the codes shown above.

To analyze my data, my first step was to gather what were the most frequently appearing codes for each group, to distill the priorities of each separate group. In the second step, I performed a similar analysis for the final recommendations delivered to the FAO by the symposium. The goal of this step of the analysis was to reconstruct what kind of discourses make up the recommendations. I wanted to see if they were based in a new kind of discourse, or if the recommendations were closely related to one of the previously identified ones.

5.2 Grouping the actors

As mentioned above, I divided the actors at the symposium into groups. I found that each actor could be identified to represent one of four groups. Besides the two traditional groups involved in policy-making, scientists and government officials (as in the science-policy interface), I discern participants. In this case study the participants are farmers and CSO-representatives. In what follows I will describe what the individuals in each group have in common.

Scientists: These are people that have an academic title and are producing scientific work for, and speak on behalf of, universities or research institutes. Their research subjects range from the natural to the social science side of agroecology.

Government officials: The individuals in this group represent national governments, government committees or supra-national government bodies such as the European Commission or FAO.

Farmers: Virtually all are self-employed small producers of agricultural products. Some of them also represent farmer's social movements, such as La Vía Campesina.

CSO-representatives: These people represent civil society organizations (CSO's). Some of these are social movements, and others are NGO's. NGO's are defined as: "those organizations that are officially established, run by employed staff (often urban professionals or expatriates), well-supported (by domestic or, as is more often the case, international funding), and that are often relatively large and well-resourced. NGOs may therefore be international organizations or they may be national or regional NGOs." (Mercer 2002, p. 6)

5.3 Clarification of the codes

As stated before, my research was designed to be two-step. The first step was to identify the discourse of each group on agroecology. The second to identify the discourses in the final recommendations of the symposium.

Step 1: Identifying discourses per group

Through my coding process, I found that there are two things each group does. First, they establish what agroecology means to them. Anything related to this, I placed in the category of codes called 'characterizing agroecology'. Here are the codes for this category once more:

- Characterizing agroecology
    - Scale
        - Local
        - Regional
        - Global
    - Style
        - Technical (incremental)
        - Socio-cultural (transformational)

I started with many codes, that eventually I saw to fit into fewer descriptions. First, I noticed that agroecology is referred to on the basis of *scale.* That is to say, the individual

describes agroecology as a *local, regional* or *global* phenomenon. However, as my research furthered, I saw a more important pattern. This was the *style* of agroecology each person was speaking about. I noticed that some people defined agroecology as something *technical*, meaning that they mostly talked about the benefits of agroecological techniques at the farm production level. However, there were also those that defined agroecology as a *socio-cultural* phenomenon. This style focuses on the wider political, social and cultural facts that structure said production.

The difference between the technical and the socio-cultural style is that of choosing between incremental and transformational change. People that present agroecology as a series of technologies that can be applied to make production more sustainable, advocate incremental change. In simpler words: they want to 'tweak the system', believing that if some parts of the dominant agro-food regime are changed, this will solve our problems. They value the connection between scientific experts and farmers, which is believed to be the optimum channel through which to ameliorate sustainable production. Advocates of the socio-cultural style of agroecology seek to transform, rather than conform to, the dominant agro-food system. Therefore, they seek to build bridges between different groups of actors, and look for ways to make change happen that goes beyond improving individual farm systems into transforming the food system as a whole. This important difference in the style in which agroecology is defined, has interesting links to discussions in the literature about agroecology, to which I will return later.

The second thing each group does is deliver recommendations that they deem best suitable to further the scaling up and out of agroecology. Anything related to this, was placed in the category of codes called 'recommendations':

- Recommendations
    - Paradigm shift
        - Research and education
        - Changing public discourse
    - Market
        - Regulated market
        - Free market

I found that there are roughly two kinds of policy recommendations given: ones that contribute to a *paradigm shift* about what constitutes good food production, and ones that promote changes in the workings of the *market.* Within the former, two kinds of suggestions were given: those that relate to *research and education*, and those that relate to *changing*

public discourse. Research and education related recommendations advocated different kinds of changes within the school and university systems. Recommendations that relate to changing public discourse can for example encompass calls to change the definition of productivity to include ecological sustainability. Within recommendations that refer the structure of the market, I found an overwhelming majority of people advocate a more *regulated market*. However, there were also those that favored *free market* solutions. They usually pointed to the competitiveness of agroecological production systems.

Step 2: Analyzing the final recommendations of the symposium

During the second day of the symposium, a drafting committee worked to combine all the recommendations given by the actors present at the event into a final joint statement. I analyzed this final document of 37 recommendations in the same manner as the words spoken at the symposium. Meaning I coded the text document in NVIVO, and saw how the final recommendations 'characterize agroecology' in a certain way, and which kind of 'recommendations' were the most frequent.

5.4 Limitations

In my initial plan for this thesis I aimed to interview some of the people that spoke at the symposium, in order to triangulate my findings. This would have given me a more in-depth look in the relations between the different discourses found, and the reasons why individuals stand for a certain type of discourse. Unfortunately, due to time constraints I was not able to carry out this step in the process. It would have been interesting and enlightening to have had a personal reflection from some of the actors on my research results. However, the methods used in this analysis are carefully constructed to provide a valid basis for discourse analysis. Therefore, the discourse analysis described below, is also reliable without triangulation.

6. Data presentation and analysis

6.1 The actors: the speakers at the symposium

In this section I shortly explain the organization of speaking time at the symposium. Of the people with speaking time at the Symposium, 24 out of 57 were scientists. There were 39 speeches (6 by government representatives, 18 by scientists, 9 by farmers, 6 by NGO-representatives) and 18 audience members contributed. Importantly, the speeches took up the majority of the time at the symposium. This means that the insights that were shared by the speakers were largely established beforehand. There was relatively little time to generate new insights through discussion.

The first thing to conclude is that the group 'scientists' received the most speaking time: besides receiving 20 slots for speeches, there was the discussion time in which they contributed. In total, 9 people with speaking time were grouped under farmers (including 1 representative of fisher peoples). All these people gave speeches: they were thus small in number but still occupied a significant amount of time at the symposium. The government officials (8 presenters, 7 audience contributors) spoke slightly more than NGO-representatives (5 presenters, 9 audience contributors).

Below, I will outline the results per group. The quotes I use to illustrate my findings are directly transcribed from the video recording of the symposium. Because the video is publicly available, I have permitted myself to attribute the quotes directly by name. In the final part of this section I will elaborate on the findings for the recommendations.

6.2 Scientists

This group provided a quite unambiguous outlook on what actions they think are needed to help agroecology grow. Their recommendations were overwhelmingly directed at 'research and education'. This indicates that scientists assign themselves a big role in the transition to agroecology. They focus mostly on what they, as researchers, need to be able to carry out this big role. Firstly they place great importance in the need for more data on the benefits of agroecology. Secondly, they emphasize a greater role for science as a mediator between different kinds of knowledges. Actors that are not identified as scientists are thereby are seen as previously untapped sources of interesting insights. Examples of such an outlook can be found in the words of dr. Les Levidow (researcher at Open University in the UK) and of prof. Alain Peeters (researcher at the RHEA institute in Belgium).

Les Levidow:
The agronomic, agroecological research can play a crucial role in identifying and systematizing the knowledge that already exists and perhaps is already being exchanged among ae farmers.

Alain Peeters:
Farmers can be considered as researchers. They're knowledge producers and this knowledge can be combined with the knowledge of scientists and other knowledge from other actors.

Both these quotes are illustrative of a vision of science combining other kinds of knowledges to gain new understandings. This approach appears to advocate a more horizontal way of knowledge development, however it maintains that science is the best place to verify this knowledge. This will be elaborated upon in the discussion of the results.

While they are clear on the need for science, scientists are a lot less clear about what kind of agroecology they want to promote through these recommendations. My analysis showed there was a division between scientists that advocated a technical style of agroecology, and those that stood for a more socio-cultural style. The technical style received slightly more emphasis from scientists at the symposium. Many of the scientific presentations dedicated large amounts of time to summing up potential agroecological strategies and methods. An example of this technical style is this excerpt of the speech of Jean-Francois Soussana, who works for the French research institute INRA:

We think about how to use different breeds and different cultivars. At the top right you see that if you have contrasted arrangements of wheat cultivars or if you have mixtures of cultivars, you can change the risks from rust strains. Wheat rust is obviously a risk and you can limit the disease spread by mixing the cultivar or by assembling the cultivar to landscape scale. Another strategy is to use the grasslands and arable crops which provide a sustained resource for the pollinators and that is on the bottom left where you see how the pollinators can actually use a grassland at times where you have no flowers with the crops.

As said before, with the technical style, agroecology is presented as a series of techniques. The focus is on how to make individual production systems more sustainable. The technical style thinks until the edge of the farmer's land, as it were. On the other hand, the socio-cultural style focuses on the wider political, social and cultural facts that do or do not allow a farmer to produce in a certain way. Advocates of the technical style promote incremental change, whereas advocates of the socio-cultural style promote want transformational change. They seek to transform, rather than conform to, the dominant agro-food system. Professor Michel Pimbert, of the Centre for Agroecology Water and Resilience at Coventry University (UK), was one of the foremost advocates of this socio-cultural style at the symposium. Exemplary are these words:

> Agroecology moved from the field to encompass the whole food system. And one other definition is that agroecology is the ecology of food systems. The different bits that connect seeds to plate, but also the policy and institutional framework that determine the pathways of food systems. Now that formulation actually brought about a change in agroecological practice because it opened up a broader perspective that facilitated the links with farmer organizations, consumers citizen groups and social movements supporting alternative to industrial food and farming. (…) There are a lot of normative issues in the choices ahead of us.

I want to draw attention to the last point that he makes here. Professor Pimbert explicitly mentions the normativity inherent in making policy choices for agriculture. The technical style does not address this. In fact, it makes this normativity invisible, as it casts the answer to each question as a technological one. By enumerating technical solutions and (consciously or not) avoiding scientific conversation on what measures may be needed to make these solutions happen in the real world, the technical style of characterizing agroecology acts in a depoliticizing manner. This depoliticization of agroecology has been perceived by scholars outside of the European Symposium, by for example by Molina (2013) and Gliessman (2011). I will come back to this later.

In conclusion, scientists envision an important role for themselves in promoting agroecology. But there seems to be no consensus amongst scientists over whether agroecology is merely a set of management techniques or also a normative framework for how food should be produced and how resources should be distributed. Also lacking is consensus over whether agroecology is willing to conform with the current agro-food regime,

or if its goal is to transform this. The results of my research show that people on both sides of the argument have mentioned the opposite side. It is not the case that they completely ignore the other. However they just put significantly more emphasis on their own solutions.

6.3 Government officials

When compared to scientists, government officials were more univocal when it came to characterizing agroecology. By far, the most popular way in which policy-makers understand the discipline is in the technical sense. They often talk about agroecology as a tool for of climate change adaptation and mitigation. Relating to this, they qualify agroecology relatively more often as a global solution. In the way they speak of agroecology, policy-makers echo the technical scientific discourse discussed above. They seem to generally speak about agroecology as a series of management techniques. An example of such can be seen in a quote from an Austrian government representative:

> We promote the creation of biodiversity strips, or flowering strips on arable land or grassland. We have now an amount of 70000 hectares of flowering strips. We also promote the greening of arable land, the direct seeding, the maintenance of rare livestock breeds, rare plants. We also promote the management of species rich meadows and pastures.

Absent in this kind of narrative are of course any of the challenges that producers face before and after production in the field, such as access to seeds and markets. This is problematic because by focusing solely at the farm plot, the farm is treated in isolation from the food system as a whole. Even though this is what dictates how farmers can grow. The availability of seeds and the demand for a certain product are what drives agricultural production. If this is not recognized, and only technical solutions are pursued, scaling agroecology up and out will be difficult. Moreover, the effectiveness of such solutions will be minimal if they are not integrated into the reality of the food system.

In their recommendations, government officials strongly push for ‘research and education’ and ‘government regulated market’ solutions. Related to the former, government officials emphasize the need for wider education on all levels, but also want to see more scientific data. The latter means mostly that they think governments should install regulations that favor agroecological production methods over conventional production methods. Possible

regulation change entails for example changing subsidy structures, but also changing food sanitation laws so that they allow for local processing. A good example of both recommendations are the words of Serge Tomasi, who is the French ambassador to the FAO:

> There were two observations this afternoon which were very important. First, the agroecological approaches that can respond to this climatic challenge in terms of adaptation for example. In relation to this climatic agenda we would like to transform the actual economical model for it to become more favorable to human capital. And another intervention, regarding our evaluation on agricultural system performance. The reason why some people hesitate is economic performance. It's important to prove that an agricultural exploitation can be profitable, but also going beyond the short-term financial benefits.

Tomasi here calls for economic regulations that are more favorable to agroecology, with the main reason that agroecology as a management tool can prepare production systems better for climate change. He also calls for the development of thinking on how to assess agroecological systems differently, for which scientific work is needed.

In short, government officials generally speak about agroecology as a tool for managing production systems more sustainably. Their discourse thus, is that of the technical style of characterizing agroecology. This style can be myopic in that it excludes socio-economic factors that contribute to how food is produced and consumed. Government officials' recommendations can be directly link to this discourse, because they mostly ask for more data on the workings of agroecological systems. However, they also call for more economic regulations that would favor the spread of agroecological production methods. This shows that to some extent the holism of the food system is understood. Finally, based on the way they tend to describe agroecology, and the type of recommendations they bring forward, I conclude that the policy-makers' discourse lies quite close to that of the 'technical' scientists.

6.4 Farmers

Contrary to the previously discussed groups, the 9 farmers that spoke, overwhelmingly emphasized the socio-cultural dimensions and the potential of agroecology to transform the entire food system. In defining agroecology they pay more attention than other groups to the

concept of scale. For them, the local scale is the focal point. Furthermore, they emphasize the socio-cultural side of agroecology very heavily in comparison to the other groups. The technical perspective is completely absent in their rhetoric. Instead, they speak of agroecology in terms of more 'soft' concepts, such as personal connection to the location of production. Here is a quote by farmer and Vía Campesina representative Jyoti Fernandes, which illustrates this:

> Every day, our daily work embeds us in these very complex ecosystems and our definition of agroecology includes much more than the scientific practices that may avoid the use of fertilizers or pesticides or these terrible practices put forward by industrialized agriculture. It's much more than that. Because our work is about working really deeply in our landscapes and within the cultural identity of our rural communities and our urban areas to make sure that food is really working with a very holistic system. It's part of having a really deep understanding of those systems and using multiple parts of that system very holistically to bring all these things together.

Farmers spoke most about the importance of community, and how agroecology can help build stronger ties between people. They also stressed that farmers are important holders and creators of knowledge. Here is a quote by peasant woman Alazne Intauxspe (from the Basque Country), which exemplifies both those points:

> Social transformation is our objective, to achieve a more just society. The peasantry has a lot of knowledge, a lot of practices that they have been doing year after year, to which they add year after year. For agricultural sustainability it is important that more and more young people become involved in this healthy way of life all over the planet. Not only for ecology, but also so that agriculture can make possible different human relationships.

The farmers underscored time and time again that they want to be seen as holders and creators of knowledge, and not just as end-receivers of scientifically sound techniques. Their focus on the knowledge that exists outside of academia comes back in their recommendations. Farmers' most popular recommendation was 'research and education'. However, rather than asking for more scientific data, they proposed that horizontal ways of knowledge production should be created. This means that they want to establish a dialogue – as equals – with

scientists and other actors. Furthermore, they emphasize the importance of learning about agroecology at all levels of education. This means not only formal education, but also farmer-to-farmer learning networks, which they maintain should be the main channel through which agroecology is promoted as Pavlos Georgiadis (organic farmer from Greece) explains:

> Case studies and programs are very important to be emphasized, but we have to keep in mind that they are usually local small-scale prototypes. It's important not only to identify them but also to connect them, scale them, communicate them. To every village, every island, every mountain, the most marginalized places.

Another frequently mentioned recommendation from the farmers was to regulate the market more. They propose that the state should shape market dynamics in such a way that they protect small agroecological farming projects. They mostly stressed the need for regulation that safeguards the accessibility of genetic and land resources for small farmers. Here are two examples of this from Guy Kastler (Reseau Semences Paysannes, France) and Jyoti Fernandes:

> Guy Kastler:
> Farmers have to have the right to be able to select their own seeds every year. And they must be secured another right, they need to be able to exchange seeds so that they can renew this diversity amongst themselves.

> Jyoti Fernandes:
> Before we look at the science of agroecology - which is also one dimension that's important, and so many resources are poured into this - it's also fundamentally important to look at the models of access to the resources. To be able to produce food. What could be protected in that scenario is the land rights to the commons. And helping farmers to be able to register and protect that land so that they can food for their communities.

Furthermore, and in relation to this, this group holds that global free market trading schemes damage local production (and therefore local culture). Therefore, they rail strongly against such export-focused trade regulations. This is in line with their strong values of solidarity with

other small scale producers around the world. Jyoti Fernandes explained how a food system based on export-focused policies hurts local communities 'here' and 'there':

> India is the largest dairy farmer in the world. It's the largest people's milk industry in the world. Producing a livelihood for 90 million people. Now if, as the European governments often want to do, we want to intensify our production, for export to the global economy, and sell it as powdered milk, reducing trade barriers through free trade agreements that India can put up to protect their dairy farmers, that means we will be destroying the livelihoods of those 90 million farmers. Think of the number of suicides in India that will create. Number of livelihoods that will be destroyed. Number of people that live in the rural environment that won't have access to that healthy nutritious milk for their families and for their communities.

In conclusion, farmers at the symposium placed more attention than scientists or policy-makers on the human relationships that take shape through particular ways of organizing agricultural production. They also emphasized strongly how they see themselves as actors. In this way, they established a very different discourse of agroecology.

6.5 CSO-representatives

Lastly, this group too, focuses on the socio-cultural rather than the technical side of agroecology. In the way that they characterize agroecology, they emphasize the need for changing the way the whole food system is organized. An example of this was given by Natalia Laino of the World Forum for Fisher People:

> We should talk about the need of making direct sales to the consumer to avoid that the benefits are taken by third parties. The food logically should be agroecological or organic but they are obviously more expensive. But they should have better prices. It's a change of mentality, I've heard it many times this morning.

To achieve such system reorganization, the CSO-representatives make recommendations that can be placed in the categories 'government regulated market' and 'research and education'. As an example of the first, I take Samuel Feret's words on the

European Union's Common Agricultural Policy (CAP). He works for ARC2020, a platform where NGOs that work on sustainable food and farming come together.

> The answer to the question of CAP and agroecology, at least from a government perspective is: "Yes we can, but we don't dare." Why? Because, in Europe, CAP is the key legislative framework that influences the production, sales and processing of agricultural products. It has made major decisions on the direction of agriculture in Europe. It has encouraged intensification and specialization of production. It has not gone far enough to stimulate agroecological production methods. Agroecological practices and approaches should be recognized and embedded into the CAP framework. We need to provide enough financial provisions to fund the agroecological transitions.

As for the 'research and education' recommendation, this corresponds to the activities of CSOs themselves. They are often involved in setting up teaching programs for farmers and children. An example of the importance of these programs is given by Lusine Nalbandyan, from the NGO Armenian Women for Health and Healthy Society:

> We have been organizing farmer field schools and also production and usage of compost in small scale farms and I have to say that after the collapse of Soviet Union after 1991, all lands were privatized in Armenia and each person living in a village got a small plot of land without exact knowledge and exact plan how to deal with this land. And here agroecology is very important and an advisory system is also kind of lacking for them how to do… maybe this seems very small input but still it's very important to help them to carry out all these issues.

Hereby, the importance of on-the-ground learning opportunities for farmers is stressed. Thus, this is another example of how not only formal education, but also farmer-to-farmer networks were stressed at the symposium.

In conclusion, CSO-representatives the paradigm shift that needs to happen for agroecology to scale out and up. This relates to their own activities. CSOs are often involved in awareness raising and education projects, so it is not strange that their recommendations emphasize education so much. Besides this, they recommend market regulation by

governments. This is not related per se to their activities, but it is related to their idea of agroecology as a transformative force.

6.6 Recommendations

In this section I present the results of the analysis of the final recommendations of the symposium. The committee that drafted the recommendations of the symposium was made up of Caterina Batello (FAO), Eva Torremocha (IFOAM), Lusine Nalbandyan (Armenian Women for Health and Healthy Environment), Alexander Wezel (ISARA), Jyoti Fernandes (La Vía Campesina EU) and Michel Pimbert (Coventry University). After a session in which amendments could be made by the participants of the symposium, a final list of 37 recommendations was approved. I analyzed the discourse of this document in the same manner as the discourses of each group, to see if this document resembles closely one of the previously mentioned discourses, or if something new was established.

As for the characterization of agroecology, I found that the technical and socio-cultural styles were represented equally. The document has a balanced focus on the technical basis on the one hand, and the wider food system context on the other. Provided below is an example of each:

> Technical:
> 28. Promote and support agroecological practices that reduce external inputs – specifically seeds, fertilizers, pesticides, animal feed and, fossil fuels enhancing the capacity of soil and agroecosystem health to close cycles and maintain productivity, stability and resilience.
>
> Socio-cultural:
> 3. Promote the establishment of Food Policy Councils at local, regional and national level to foster and allow consumers and food producers participation in decision making processes around the food system, markets and trade.

The fifty-fifty balance does not completely reflect the fact that a larger part of the assembly pushed for more recognition of the socio-cultural dimensions of agroecology. Perhaps this is due to the skewed division of speaking time, in which scientists benefitted. I will further elaborate on this in the discussion section.

As for the recommendations themselves, I found that by far the most were in the category ‘paradigm shift’, with the majority of those falling under ‘research and education’. The final recommendations thus place great importance on research and education interventions, which reflects the fact that almost all groups suggested these. This type of recommendation focuses on the academic environment, but also on more “on-the-ground” learning experiences and bridging the two. A good example of this is:

> 31. Strengthen public research: allocate more funds for public research in this field, favour interdisciplinary research better connecting agricultural, ecological and social sciences. Facilitate changes in research organisations (incentives and rewards, ways of working and the training of scientists and professionals) and enable farmers and citizens’ participation in research including in their community and in governance of research: setting upstream research priorities, the allocation of funds, and participation in production of knowledge and in risk assessments.

Furthermore, an important role is taken up by recommendations aiming to ‘change public discourse’. These type of recommendations urge policy-makers to raise awareness about agroecology amongst the general public. They also aim at giving recognition to non-dominant knowledges, such as traditional knowledge and cultural practices. The prominence of this type of recommendation is interesting, since it was not the most important for any of the groups. However, it was touched upon in almost every session, and must have been emphasized by members of the drafting committee in the process of drafting the recommendations. Two examples of this type of recommendation are:

> 16. Promote policies, practices, research and awareness creation material to achieve the transformative potential of agroecology to address the urgency of adapting, mitigating and reversing climate change.

> 26. Recognise, value, support and document ancestral knowledge and modern innovations, traditions, pastoralists and peasants’ local wisdom. Include participatory action research, the co-production of oral and written knowledge and cultural practices that addresses the true needs of communities, and particularly considers the needs of women, indigenous peoples, vulnerable groups, and youth. Ensure that innovations and the products of research remain in the public and collective domains according to

Article 9 in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

Lastly, the 'regulated market' recommendations. In comparison to the amount of emphasis these received from different groups, I found that it gets relatively little attention in the final recommendations. An example of a formulation of a 'regulated market' recommendation is:

2. Improve and develop a policy and economic framework within agricultural policies that supports and allows farmers to implement agroecological practices and make the transition to agroecological farming systems in the Common Agricultural Policy (CAP) and in other food and agricultural related policies and programs throughout the Region. Direct payments should be made depending upon protecting and enhancing biodiversity.

In conclusion, the final recommendations of the symposium are reasoned from a place that uneasily tries to reconcile the two perspectives on agroecology. Both the technical ("management solutions are enough") and socio-cultural ("we must change the whole food system") discourses are used as points of departure, even though they are really each other's opposite. Because of this, the question of conforming to or transforming the current agro-food regime remains only partially answered. Given the fact that all groups recommended governments intervene in markets to make them more accessible for agroecological producers, I would have expected a firm stance in the recommendations calling for exactly this. Instead, the majority of the recommendations focus on 'research and education' and 'public discourse change'. Thereby, the idea of agroecology is firmly supported by the final recommendations, but the structural changes that are needed to make this idea a reality are not adequately addressed.

The attempt at reconciliation of the two perspectives also leads to a potentially problematic representation of the opinions shared at the symposium. In fact, only a marginal group (consisting of some scientists and most policy-makers) was advocating the technical point of view. Essentially all invited 'participants' were pushing the socio-cultural agenda. The fifty-fifty division in the final recommendations does not completely do right by what was actually discussed at the symposium.

7. Discussion

7.1 Introduction

The goal of this thesis has been to analyze a high level governance event on the topic of agri-food governance as an interface where participants from civil society, scientists and policy officials meet. Such a PSPI would open up the possibility of more democratic co-production of knowledge for decision-making processes, and thereby to better informed decisions. In this section, I will discuss the structure of FAO's European Symposium on Agroecology and to what extent it allowed for co-production of knowledge. Then, I will discuss the main insights from my data analysis to show what kind of discourses were represented at the symposium, and how they eventually influenced the recommendations to the FAO for further policy-making.

7.2 The structure of the FAO symposium as a PSPI

In opposition to the traditional SPI, a PSPI includes voices from outside the academic or policy-arena. FAOs European symposium did exactly this, by inviting farmers and CSO representatives to give presentations and join in the discussions. However, I would argue that to strengthen the realization fruitful co-production of knowledge, the division of speaking times would have to be amended. As I mentioned in the data analysis, an unequally large amount of time was awarded to scientists. Therefore, scientists seem to be recognized still as the more valid producers of knowledge. This indicates that the "knowledge transfer paradigm" as discussed by Anderson & McLachlan (2015) is still very much in place. In a true PSPI, science would be one form of knowledge amongst the experiential knowledge of farmers and CSO representatives, instead of receiving preference.

Secondly, I found it quite problematic that so much time was reserved for speeches as opposed to discussion. The discussion was not always fruitful because of the short amount of time that was reserved for it. I think this did not benefit the interaction of different discourses. Instead, it contributed to people with different opinions talking completely past each other, therefore missing an opportunity for meaningful discussion or for the creation of new insights.

In conclusion, I contend that the European symposium to a degree can be seen as an example of a PSPI, but that there were certain factors in its design that inhibited the event from fulfilling its full potential.

7.3 Depoliticization of agroecology

Regarding the content of the contributions at the symposium, I showed that a majority characterized agroecology as a socio-cultural phenomenon with the potential to transform the food system. Importantly, the contributions coming from civil society took this stance. For these people, and part of the scientists, it is clear that (not) choosing to promote agroecological production methods is a normative choice. However, some of the scientists presented agroecology as a technical fix that does not entail meddling with the wider current state of affairs in the agri-food system. Meanwhile, the policy officials do the same. This led to a very clear call for the acknowledgment of norms and values about resource distribution on one side, and on the other side a refusal of recognizing normativity in agroecology.

This mirrors a division between agroecology scientists that was discussed in the literature review of this thesis. Those adhering to the discourse of transformation argue that the 'technocrats' spread "the false idea that only technological innovation, without substantial social and economic change, will achieve more sustainable agriculture"(Molina 2013, p. 46). According to the transformational discourse, if the problems caused by the broader economic structures are not addressed, agroecological experiences "will be condemned to be "islands of success" amid a sea of privation, poverty and environmental degradation"(Molina 2013, p. 46).

It can be concluded that in line with trends identified from the broader literature, the technical discourse had a depoliticizing effect on the symposium. First, the technical discourse brought about a call for 'more data' from both scientists and policy officials. As was discussed before, this type of call for evidence can work in a depoliticizing manner. The question of what we want to do with the agri-food system is very multi-faceted, and data, as I have shown, does not come about through neutrality but through the social paradigm of the researcher. For these reasons it needs to be clear what the selection criteria for evidence are. As Duncan (2016, p. 142): "to call for policies to be evidence based without identifying the criteria for selecting evidence, is to effectively hide a selection process." In an ideal-type PSPI, the parties involved would together decide upon these criteria, making also this selection process more democratic.

Furthermore, food governance discussions inhibit many characteristics of "post-normal" science as Bäckstrand (2004) defines it. For example, there is as much research that supports agroecological solutions, as there is research that supports more (bio-)technology intensive solutions. At some point, more evidence is not going to help the decision-making process. In that moment, as she writes, public deliberation should become the substitute for

scientific certainty. It could be argued that food systems policy discussions are already beyond that point, and a PSPI would facilitate such deliberation. However, these insights were not used at the symposium. Instead, the call for more data was seen as policy-action in itself, even though it delays real action.

Another aspect in which the technical discourse worked in a depoliticizing manner, is that it made a 'consensus frame' out of agroecology. It presented agroecological techniques as something that is going to create more sustainable production systems, adapt for and mitigate climate change, and protect biodiversity and natural resources. However it left out what the socio-cultural/transformational discourse explicitly states: that to establish this, some powerful interests are going to need to lose their power. This is not a message that everybody can consent with, especially not those in power. The calls for acknowledgment of the normative choices ahead were consistently ignored at the symposium.

Mooney & Hunt (2009) write: "As meaning is nuanced by the discursive context in which it is situated, the same phrase can be used quite differently by various claims-makers"(p.470). Exactly this happened to the term 'agroecology' at the symposium. Agroecology became a word that means different things to different people, which allows for a false sense of consensus. Without discussing these differences in interpretation, everybody can agree that agroecology is the way to go, while adhering to their own definition.

In this way it became possible that the recommendations document in the end awkwardly tried to balance both arguments instead of picking a side. This is a clear example of depoliticization, as it is the result of denying the fundamental disagreement between the two sides at the symposium. Instead, the outcome of the symposium was presented as a consensus. This led to an overrepresentation of the technical view which was represented by a minority.

Keeping in mind the idea of the PSPI, it is very important to note again that all invited civil society participants propagated the socio-cultural discourse. Of course, the ideal PSPI would facilitate a conversation between equal participants, after which an informed decision would be made. However, just as the structure of the symposium prevented them from speaking as much as scientists, also the content that was brought to the table by the participants was reduced in its importance. These observations suggest that in policy spaces there remains a preference for technical scientific knowledge. This might be due to the longstanding status of science as generating 'knowledge that counts'.

We can furthermore suppose that the discourse of the technocrats is much friendlier to the status quo, because it does not challenge existing power structures and just proposes some

technological changes instead of explicit commitment to a completely different normative framework. The fact that the outcome of the symposium did not challenge the status quo in a significant way points to the importance of taking into account power structures when designing a governance process. An ideal PSPI would be designed to have a leveling effect on the different parties, so that those whose discourse is not hegemonic are allowed to have an equal impact on the governance process. Of course, it is unfortunately not in the nature of hegemony to give way other discourses. This reality is a challenge for the PSPI, and it would take more research to find out what measures might be needed for PSPIs to achieve the goal of allowing non-hegemonic voices to be heard.

8. Conclusion

In this thesis I have shown the importance of including civil society participation in theories of public policy-making processes. I have advanced the concept of the PSPI as opposed to the SPI, to be able to theorize the involvement of non-state and non-science actors in contemporary governance processes. Besides its use for greater analytical precision in describing the goings on in a governance process, I have also shown how the PSPI can help assess these processes normatively. From the moral baseline that people should be able to have a say in the decisions that affect their lives, the PSPI can show if and how governance processes jeopardize democratic principles and point out how to do better.

Furthermore, I have shown that through safeguarding participation not only does governance become more fair, but it also becomes better. Co-production theory and cognitive justice have shown that objective knowledge does not exist. Even the most technical scientific knowledge has its parameters defined by the social context in which it came into being. Accepting this means realizing that knowledges other than science also can have valuable contributions to the decision-making process.

The case study of this thesis was a high level event on agroecology governance. It was the perfect topic, because agroecology itself is a discipline that strongly values contributions from non-academic practitioners. I hypothesized that this symposium might embody all the features of a PSPI, in that it facilitates the co-production of knowledge. However, I found this only to be partly true. The discourses about agroecology that were represented at the symposium were quite easily discernable along lines of power imbalance. A majority of the symposium spoke out in favor of extensive measures in the area of economic and socio-cultural life to facilitate the scaling out of agroecology. This group consisted of CSO-representatives, farmers and some academics. The minority of scientists and policy-officials however chose to understand agroecology only as something technical. This group is more powerful because scientists still to some extent are seen as the sole source of ‘true knowledge’, and the knowledge transfer paradigm still exists. Furthermore, their discourse is not in conflict with the current status quo, making them more powerful.

In the end, the event was a good start for the inclusion of different voices in governance processes. However, the goal should be not only to include different people but also to listen to them. At the end of symposium there was the pretense that the two opposing points of view were not in conflict. Such a clear example of depoliticization was not what I

expected from this symposium. Therefore I conclude that co-production of knowledge did take place, but that it was not realized to its fullest potential.

The process of writing this thesis was more difficult than I anticipated. Personally, the most difficult was deciding on the focus of this research. I feel like I spent a lot of time reading about different things, not able to make up my mind about which theory I was going to use and what topics I wanted to focus on. I feel that next time I could do a better job at managing my time, as I now know that being able to cut out things allows for so much more clarity. As frustrating as it was however, I really did enjoy the creative process. I liked being able to explore my own thoughts and check them with literature and being able to see where it would take me.

There are many roads this research could have taken. Firstly, I would have wanted to include interviews with the drafting committee of the symposium. I would have been really interested to go deeper into the division between agroecology scientists, and what they each think of each other's point of view. Other research might include answering legal questions of how to make sure governance decisions are made for the benefit of everybody. Furthermore, the dynamic between agroecology as a science and its more practical counterparts calls for more investigation. And lastly, it would be important to compare the differences in the representation of agroecology across the different FAO events, to understand what agroecology means to different people in different parts of the world.

References

Altieri, M. A. (2014). Agroecology: principles and strategies for designing sustainable farming systems. *Igarss*, (1), 1–5. https://doi.org/10.1007/s13398-014-0173-7.2

Altieri, M. A., & Holt-Giménez, E. (2016). *Can agroecology survive without being coopted in the Global North?*

Altieri, M. A., & Toledo, V. M. (2011). The agroecological revolution in Latin America: rescuing nature, ensuring food sovereignty and empowering peasants. *Journal of Peasant Studies*, *38*(3), 587–612. https://doi.org/10.1080/03066150.2011.582947

Altieri, M., & Nicholls, C. (2005). *Agroecology and the search for a truly sustainable agriculture*. *Basic Textbooks for Environmental Training*. United Nations Environment Programme.

Anderson, C. R., & McLachlan, S. M. (2015). Transformative research as knowledge mobilization: Transmedia, bridges, and layers. *Action Research*, 1–23. https://doi.org/10.1177/1476750315616684

Avelino, F., & Wittmayer, J. M. (2015). Shifting Power Relations in Sustainability Transitions : A Multi-actor Perspective. *Submitted to the Journal of Environmental Policy & Planning*, *7200*(December), 1–23. https://doi.org/10.1080/1523908X.2015.1112259

Bäckstrand, K. (2004). Civic Science for Sustainability: Reframing the Role of Experts, Policy-makers and Citizens in Environmental Governance. *Global Environmental Politics*, *3*(4).

Beck, S. (2010). Moving beyond the linear model of expertise? IPCC and the test of adaptation. *Regional Environmental Change*, *11*(2), 297–306. https://doi.org/10.1007/s10113-010-0136-2

Bonanno, A., & Constance, D. H. (2001). Globalization, Fordism, and Post-Fordism in Agriculture and Food: A Critical Review of the Literature. *Culture & Agriculture*, *23*(2), 1–18. https://doi.org/10.1525/cag.2001.23.2.1

Buchanan, K. S. (2013). Contested discourses, knowledge, and socio-environmental conflict in Ecuador. *Environmental Science and Policy*, *30*, 19–25. https://doi.org/10.1016/j.envsci.2012.12.012

Clapp, J., & Fuchs, D. (2013). Agrifood corporations, global governance and sustainability. In J. Clapp & D. Fuchs (Eds.), *Corporate Power in Global Agrifood Governance* (pp. 1–26). MIT Press.

Coolsaet, B. (2016). Towards an agroecology of knowledges: Recognition, cognitive justice and farmers' autonomy in France. *Journal of Rural Studies*, *47*(August), 165–171. https://doi.org/10.1016/j.jrurstud.2016.07.012

Duncan, J. (2016). Governing in a Postpolitical Era : Civil Society Participation for Improved Food Security Governance. In D. Barling (Ed.), *Advances in Food Security and Sustainability* (Vol. 1, pp. 137–161). Burlington: Academic Press.

Evers, A., & Laville, J. L. (Eds.). (2004). *The third sector in Europe*. Cheltenham, UK: Edward Elgar.

Eversole, R. (2011). Community Agency and Community Engagement: Re-theorising Participation in Governance. *Journal of Public Policy*, *31*(1), 51–71.

FAO. (2013). Our Priorities, The FAO Strategic Objectives. Retrieved from http://www.fao.org/docrep/018/mi317e/mi317e.pdf

FAO. (2015). Agroecology for Food Security and Nutrition: Proceedings of the FAO International Symposium (p. 1). Rome: FAO.

FAO. (2016). *The State of Food and Agriculture 2016: Climate change, agriculture and food security*. Rome.

FAO. (2017). About FAO. Retrieved from http://www.fao.org/about/en/

Fischer, F. (2000). *Citizens, Experts and the Environment: the Politics of Local Knowledge*. Duke University Press.

Fricker, M. (2007). *Epistemic Injustice: Power and the Ethics of Knowing*. Oxford University Press.

Friedmann, H. (1993). The political economy of food: a global crisis. *New Left Review*, *197*, 29–57. https://doi.org/10.2190/451A-896W-GGLK-ELXT

Friedmann, H., & McMichael, P. (1989). Agriculture and the state system. *Sociologia Ruralis*. https://doi.org/10.1111/j.1467-9523.1989.tb00360.x

Gerometta, J., Häussermann, H., & Longo, G. (2005). Social innovation and civil society in urban governance: Strategies for an inclusive city. *Urban Studies*, *42*(11), 2007–2021. https://doi.org/10.1080/00420980500279851

Gieryn, T. F. (1983). Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists. *American Sociological Review*, *48*(6), 781–795.

Gilbert, N. (2012). One-third of our greenhouse gasses come from agriculture. Retrieved August 23, 2017, from https://www.nature.com/news/one-third-of-our-greenhouse-gas-emissions-come-from-agriculture-1.11708

Gliessman, S. (2013). Agroecology: Growing the Roots of Resistance. *Agrecology and Sustainable Food Systems*, *37*(1), 19–31. https://doi.org/10.1080/10440046.2012.736927

Gliessman, S. (2015). *Agroecology: the Ecology of Sustainable Food Systems*.

González, H. (2010). Debates on food security and agrofood world governance. *International Journal of Food Science & Technology*, *45*(7), 1345–1352. https://doi.org/10.1111/j.1365-2621.2010.02248.x

Grote, J. R., & Gbikpi, B. (2002). From Democratic Government to Participatory Governance. In *Participatory Governance: Political and Societal Implications* (pp. 17–34).

Guston, D. (2001). Boundary Organizations in Environmental Policy and Science: An Introduction. *Science, Technology & Human Values*, *26*(4), 399–408.

Guthman, J. (2015). Binging and purging: agrofood capitalism and the body as socioecological fix. *Environment and Planning A*, *47*(12), 2522–2536. https://doi.org/10.1068/a140005p

Hajer, M., & Wagenaar, H. (2003). Introduction. In M. Hajer & H. Wagenaar (Eds.), *Deliberative Policy Analysis: Understanding Governance in the Network Society* (pp. 1–29).

Hansmann, R., Mieg, H. A., & Frischknecht, P. (2012). Principal sustainability components: empirical analysis of synergies between the three pillars of sustainability. *International Journal of Sustainable Development & World Ecology*, *19*(5), 451–459. https://doi.org/10.1080/13504509.2012.696220

Harvey, D. (2005). *A Brief History of Neoliberalism*. Oxford University Press.

Huitema, D., & Turnhout, E. (2009). Working at the science–policy interface: a discursive analysis of boundary work at the Netherlands Environmental Assessment Agency. *Environmental Politics*, *18*(4), 576–594. https://doi.org/10.1080/09644010903007427

Jasanoff, S. (2004). The idiom of co-production. In S. Jasanoff (Ed.), *States of Knowledge: The co-production of science and the social order* (pp. 1–12).

Jasanoff, S., & Wynne, B. (1998). Science and decisionmaking. In S. Rayner & E. L. Malone (Eds.), *Human choice and climate change* (pp. 1–87). Columbus Ohio.

Konefal, J., Mascarenhas, M., & Hatanaka, M. (2005). Governance in the global agro-food system: Backlighting the role of transnational supermarket chains. *Agriculture and Human Values*, *22*(3), 291–302. https://doi.org/10.1007/s10460-005-6046-0

Kremen, C., Iles, A., & Bacon, C. (2012). Diversified Farming Systems: An Agroecological, Systems-based Alternative to Modern Industrial Agriculture. *Ecology and Society*, *17*(4),

1. https://doi.org/10.5751/

Lang, T., & Heasman, M. (2009). *Food Wars: The Global Battle for Mouths, Minds and Markets*. London: Earthscan.

Latour, B. (1987). *Science In Action: How to follow scientists and engineers through society*. Harvard University Press.

Lemke, T. (2001). 'The birth of bio-politics ": Michel Foucault"s lecture at the Collège de France on neo-liberal governmentality. *Economy and Society*, *30*(2), 190–207. https://doi.org/10.1080/03085140120042271

Lievens, M. (2015). From Government to Governance : A Symbolic Mutation and its Repercussions for Democracy. *Political Studies*, *63*(1), 2–17. https://doi.org/10.1111/1467-9248.12171

McMichael, P. (2009). A food regime genealogy. *Journal of Peasant Studies*, *36*(1), 139–169. https://doi.org/10.1080/03066150902820354

Mercer, C. (2002). NGO's, civil society and democratization: a critical review of the literature. *Progress in Development Studies*, *2*(1), 5–22.

Molina, M. G. De. (2013). Agroecology and Politics . How To Get Sustainability ? About the Necessity for a Political Agroecology, *3565*(June 2017). https://doi.org/10.1080/10440046.2012.705810

Mooney, P. H., & Hunt, S. A. (2009). Food Security: The Elaboration of Contested Claims to a Consensus Frame. *Rural Sociology*, *74*(4), 469–497. https://doi.org/10.1526/003601109789864053

Mouffe, C. (2005). *On the political*. Routledge.

Muñoz-Erickson, T. A. (2014). Co-production of knowledge-action systems in urban sustainable governance: The KASA approach. *Environmental Science and Policy*, *37*(2007), 182–191. https://doi.org/10.1016/j.envsci.2013.09.014

Nicholson, C., & Young, B. (2012). The Relationship between Supermarkets and Suppliers: What are the Implications for Consumers?, 1–12. Retrieved from http://www.europe-economics.com/publications/the_relationship_between_supermarkets_and_suppliers.pdf

Oosterveer, P. (2005). *Global Food Governance*. Retrieved from http://library.wur.nl/WebQuery/wurpubs/fulltext/41142

Ottinger, G. (2010). Buckets of Resistance: Standards and the Effectiveness of Citizen Science. *Science, Technology & Human Values*, *35*(2), 244–270. https://doi.org/10.1177/0162243909337121

Parmentier, S. (2014). *Scaling-up Agroecological Approaches: what, why and how?* Oxfam-

Solidarity.

Patel, R. (2009). Grassroots voices: What does food sovereignty look like? *Journal of Peasant Studies*, *36*(3), 663–706.

Phillips, L., & Ilcan, S. (2003). "A World Free From Hunger": Global Imagination and Governance in the Age of Scientific Management. *Sociologia Ruralis*, *43*(4), 434–454.

Qaim, M. (2016). Globalisation of agrifood systems and sustainable nutrition. *Proceedings of the Nutrition Society*, (June 2016), 1–10. https://doi.org/10.1017/S0029665116000598

Rosset, P. M., & Altieri, M. A. (1997). Agroecology versus input substitution: A fundamental contradiction of sustainable agriculture. *Society & Natural Resources*, *10*(3), 283–295. https://doi.org/10.1080/08941929709381027

Schmitter, P. C. (2002). Participation in Governance Arrangements: Is there any Reason to Expect it will Achieve "Sustainable and Innovative Policies in a Multilevel context"? In *Participatory Governance: Political and Societal Implications* (pp. 51–69).

Shiva, V. (2010). Earth Democracy: Beyond Dead Democracy and Killing Economies. *Capitalism Nature Socialism*, *21*(1), 83–95. https://doi.org/10.1080/10455751003655922

Silici, L. (2014). Agroecology, what it is and what it has to offer. London: IIED.

Sluijs, J. Van Der. (2005). Uncertainty as a monster in the science – policy interface : four coping strategies. *Water Science and Technology*, *52*(6), 87–92.

Soby, S. D. (2013). The End of the Green Revolution. *Journal of Agricultural and Environmental Ethics*, *26*(3), 537–546. https://doi.org/10.1007/s10806-012-9393-z

Star, S. L., & Griesemer, J. R. (1989). Institutional Ecology, "Translations" and Boundary Objects: Amateurs and Professionals in Berkeley's Museu of Vertebrate Zoology, 1907-39. *Social Studies of Science*, *19*(3), 387–420.

Starrs, T. (2009). Fossil Food: Consuming Our Future. Retrieved August 23, 2017, from https://www.ecoliteracy.org/article/fossil-food-consuming-our-future

Stoker, G. (1998). Public-Private Partnerships and Urban Governance. In Pierre (Ed.), *Partnerships in Urban Governance* (pp. 34–51).

Swyngedouw, E. (2005). Governance Innovation and the Citizen : The Janus Face of Governance-beyond-the-State. *Urban Studies*, *42*(11), 1991–2006.

Swyngedouw, E. (2010). Apocalypse Forever? Post-Political Populism and the Spectre of Climate Change, *27*, 213–232. https://doi.org/10.1177/0263276409358728

Swyngedouw, E., Moulaert, F., & Rodriguez, A. (2002). Neoliberal Urbanization in Europe : Large-Scale Urban Development Projects and the New Urban Policy.

Thompson, I. D. (2017). An overview of the science–policy interface among climate change,

biodiversity, and terrestrial land use for production landscapes. *Journal of Forest Research*, *20*(5), 423–429. https://doi.org/10.1007/s10310-015-0497-y

Thompson, J., Millstone, E., Scoones, I., Ely, A., Marshall, F., Shah, E., & Stagl, S. (2007). *Agri-food System Dynamics: pathways to sustainability in an era of uncertainty* (No. 4). Brighton.

Timmermann, C., & Félix, G. F. (2015). Agroecology as a vehicle for contributive justice. *Agriculture and Human Values*, *32*(3), 523–538. https://doi.org/10.1007/s10460-014-9581-8

Visvanathan, S. (1997). *A Carnival for Science: Essays on science, technology and development*. Oxford University Press.

Weingart, P. (1999). Scientific expertise and political accountability: paradoxes of science in politics. *Science and Public Policy*, *26*(3), 151–161.

Welsh, J., & MacRae, R. (1998). Food Citizenship and Community Food Security: Lessons from Toronto, Canada. *Canadian Journal of Development Studies/Revue Canadienne D'études Du Développement*, *19*(4), 237–255. https://doi.org/10.1080/02255189.1998.9669786

Wesselink, A., Buchanan, K. S., Georgiadou, Y., & Turnhout, E. (2013). Technical knowledge, discursive spaces and politics at the science–policy interface. *Environmental Science & Policy*, *30*, 1–9. https://doi.org/10.1016/j.envsci.2012.12.008

Wezel, A., Bellon, S., Doré, T., Francis, C., Vallod, D., & David, C. (2009). Agroecology as a science, a movement and a practice. A review. *Agronomy for Sustainable Development*, *29*(4), 503–515. https://doi.org/10.1051/agro/2009004

Whitehead, M. (2003). " In the shadow of hierarchy ": meta-governance , policy reform and urban regeneration in the West Midlands, 6–14.

Wilkins, J. L. (2005). Eating right here: Moving from consumer to food citizen: 2004 presidential address to the agriculture, food, and human values society, Hyde Park, New York, June 11, 2004. *Agriculture and Human Values*, *22*(3), 269–273. https://doi.org/10.1007/s10460-005-6042-4

Willems, W. (2014). How to do things with knowledge: an interview with Sheila Jasanoff. *Krisis*, (2), 40–46.

World Food Summit. (1996). Rome Declaration on World Food Security. Retrieved August 25, 2017, from http://www.fao.org/docrep/003/w3613e/w3613e00.htm

Wyborn, C. (2015a). Co-productive governance : A relational framework for adaptive governance. *Global Environmental Change*, *30*, 56–67.

https://doi.org/10.1016/j.gloenvcha.2014.10.009

Wyborn, C. (2015b). Connectivity conservation: Boundary objects, science narratives and the co-production of science and practice. *Environmental Science & Policy*, *51*, 292–303. https://doi.org/10.1016/j.envsci.2015.04.019

Yuval-Davis, N. (1997). Women, Citizenship and Difference. *Feminist Review*, (57), 4–27.