Master's Thesis:

SUSTAINABILITY DIMENSIONS IN FINNISH FOOD POLICY DOCUMENTS

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ABSTRACT

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Tiivistelmä — Referat — Abstract

The aim of this Thesis was to analyze Finnish food policy from a sustainability point of view. Changing operational environment, both globally and nationally, place food systems under a variety of economic, socio-cultural and ecological pressures. In addition to meet the basic objectives, such as ensuring food security, food systems are expected to fulfill a number of other goals. The drivers and goals, as well as means to food system change are defined in food policy. Considering the ecological, economic and sociocultural dimensions of sustainability in the food system analysis can also be viewed as an agroecological approach.

A content analysis, using Atlas TI software was done for three most recent and topical Finnish food policy documents: *Food2030 - government report on food policy*, and the *government programs for local* and - *organic food sectors*. The food policy documents were analyzed with the following research questions in mind: how well is the need for systemic change recognized in the Finnish food policy; what are the main drivers for change; how are different dimensions of sustainability taken into account; is the change anticipated as gradual improvements to the current food system or are there any references suggesting radically reformed food system?

The recently renewed Finnish food policy is specifically drafted with the current and forecasted changes in the operational environment in mind. The main drivers were mainly identified as sociocultural trends such as globalization, urbanization and changes in consumer behavior. The economic drivers, especially the competitiveness and export orientation of the food sector emerged as important goals for the future. The ecological dimension to food system reform gave the lowest share in all three categories (drivers, means and goals).

A change in a complex system such as a food system takes place by affecting one part of the system at a time. The current Finnish food policy does not present radical changes or radical means to change the current system. However system-level changes can often be identified only afterwards.

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KESTÄVYYDEN ULOTTUVUUDET SUOMALAISISSA RUOKAPOLITIIKKA-DOKUMENTEISSA

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Tiivistelmä – Referent - Abstract

Tämän tutkimuksen tavoitteena oli analysoida suomalaista ruokapolitiikkaa kestävyysnäkökulmasta. Globaalin ja kansallisen toimintaympäristön muutoksessa myös ruokajärjestelmiin kohdistuu moninaisia taloudellisia, sosiokulttuurisia ja ekologisia paineita. Ruokajärjestelmien on muututtava ja niille asetettujen perustavoitteiden, kuten ruokaturvan takaamisen lisäksi täytettävä joukko muita tavoitteita. Nämä ajurit, tavoitteet ja keinot tavoitteisiin pääsemiseksi määritellään muun muassa ruokapolitiikassa. Ekologisen, taloudellisen ja sosiokulttuurisen kestävyyden huomioimista ruokajärjestelmäanalyysissä voidaan kutsua myös agroekologiseksi lähestymistavaksi.

Tutkimusmenetelmänä käytettiin sisällönanalyysia, joka suoritettiin Atlas TI –ohjelmistoa apuna käyttäen. Aineistoksi valikoitui tutkimushetkellä Maa- ja metsätalousministeriön kolme tuoreinta ja ajankohtaista suomalaista ruokapolitiikkadokumenttia: *Ruoka2030 -ruokapoliittinen selonteko sekä hallituksen lähi- ja luomuruokaohjelmat.* Ruokapolitiikkadokumenteista haettiin vastauksia tutkimuskysymyksiin: kuinka hyvin suomalaisessa ruokapolitiikassa tunnistetaan systeemisen muutoksen tarve; mitkä ovat tärkeimmät ajurit ja motiivit muutokseen; kuinka kestävyyden eri osa-alueet on huomioitu; ja onko muutostarpeen tyydyttämiseksi esitetyt ratkaisut vähittäisiä muutoksia nykyiseen järjestelmään vai löytyykö ruokapolitiikan keinoista ehdotuksia, jotka tähtäävät radikaaliin ruokajärjestelmän uudistamiseen?

Suomalaisessa ruokapolitiikassa muutostarpeet ja –paineet on hyvin tunnistettu ja nykyisen ruokapolitiikan tavoitteena on nimenomaan vastata näihin toimintaympäristön haasteisiin. Voimakkaimmaksi muutosajuriksi nousi toimintaympäristössä tapahtuvat sosiokulttuuriset muutokset, kuten kaupungistuminen ja muutokset kulutustottumuksissa. Taloudelliset vaikuttimet, erityisesti ruokasektorin kilpailukyky ja vienti nousivat esiin tärkeinä tulevaisuuden tavoitteina. Taloudelliset ja sosiokulttuuriset apukeinot nähtiin myös tärkeimpinä muutoksen mahdollistajina, kun taas ekologisten ajureiden, muutoskeinojen ja tavoitteiden osuus tulevaisuudenkuvassa oli vähäisin.

Muutokset monimutkaisissa systeemeissä, kuten ruokajärjestelmätason muutokset, tapahtuvat vaikuttamalla yhteen järjestelmän osaan kerrallaan. Ruokapolitiikan tämänhetkiset keinot eivät esitä radikaaleja muutoksia tai keinoja nykyisen järjestelmän muuttamiseksi, mutta toisaalta systeemitason muutokset ovat usein havaittavissa vasta jälkikäteen.

Avainsanat — Nyckelord — Keywords

ruokajärjestelmä, ruokapolitiikka, kestävyys, agroekologia

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1. Introduction

In a globalized world food consumption patterns have largely shifted from consuming local or home grown products into consuming ”anonymous” products produced, processed and distributed by multinational corporations (see e.g. Kloppenburg et al., 1996; Wiskerke, 2009; Wittman, 2009). Consumers are becoming increasingly dependent on food from distant sources, so much that the food coming from nearby sources has gained a prefix local (in Finnish “lähiruoka”) to indicate its local origin. Lengthening food chains are a natural result from growing global trade as well as urbanization: people moving further away from primary production, and the retailers are gaining more and more power over what and how things are grown, processed and sold (Lang, 2010). Furthermore, global and national policies guide food systems towards greater centralization, specialization and trade (see e.g. Lang et al. 2009; Puupponen et al. 2016).

Limited natural resources, growing population and climate change are some of the biggest concerns threatening the way food is nowadays produced and consumed. In terms of food policy, these are rather new concerns, whereas for decades food policy was mainly concerned with issues relating to agriculture, such as energy supply, fertilizer prices, food shortages, under nutrition and other health related issues (Lang et al. 2009).

In order to secure food for people around the globe, food systems need to adapt both globally and locally. Several mechanisms including *path dependency* are keeping industrial agriculture and food systems in a dominant position (IPES, 2016; Hyvönen, 2016) and a shift towards more holistic and diversified systems will not take place by merely tweaking current practices and policies. Even radical rethinking and redesigning of the food systems has been suggested (IPES, 2016). Whatever the approach, regional, national and global policies need to be in place enabling the leap towards more sustainable food systems and it is imperative that these new era policies consider the connection between environmental and social health and social justice (Lang, 2010).

2. Literature review

This thesis discusses Finnish food policy and food systems from the Finnish point of view. Since food systems do not comply national borders, the literature part of the study focuses on scales from local to global. The aim is to provide both the writer and the reader a broader viewpoint for the overall analysis.

2.1 What is a food system?

A system has parts, flows, feedback loops and is "for something" i.e. it exists for a purpose. Green (2016) points out that a system is always more than the sum of its parts. As an example, an ecosystem is more than just a network of individual plants and animals. Green also notes that a defining property of human systems is complexity.

According to the Food and Agriculture Organization of the United Nations (hereafter FAO) (1997) a food system includes all activities related to the production, distribution and consumption of food that affect human nutrition and health. The International Panel of Experts on Sustainable Food Systems (hereafter IPES) (IPES, 2015) expands the definition and describes food system as follows:

> "*food systems refers to the web of actors, processes, and interactions involved in growing, processing, distributing, consuming, and disposing of foods, from the provision of inputs and farmer training, to product packaging and marketing, to waste recycling*"

Furthermore, according to IPES (2015) when studying food systems with "a holistic lens", the only concern is not only how these different processes interact with one another, but also how they interact in environmental, social, political and economic contexts. In other words, the IPES suggests that *food systems* refer not only to the market transactions, but also to the web of institutional and regulatory frameworks that influence those systems. Food systems are deeply rooted in ecosystems as a source of raw materials and at the same time a food system is profoundly a cultural, consumerist, social and economic entity.

Furthermore, Pinstrup-Andersen & Watson (2011) conclude that food systems include biophysical, socioeconomic, politico-institutional and demographic environments, which are all affected by food system activities. All these different environments also affect the decisions made within a food system. The stakeholders within a food system include resource owners, farmers, traders, processors, consumers, investors, policy makers, different authorities and officials from the public and private sectors (Pinstrup-Andersen & Watson, 2011).

A simple food chain from producer to consumer might be short and local, and there are also self-contained food systems where all stakeholders operate in a relatively small regional area. National food systems are in a sense local, but operate on a national level. Pinstrup-Andersen & Watson (2011) suggest that the global food system is a behavioural, social, economic, political and ecological system and it is made up of the heterogeneous regional and national food systems, that together include significant information and pose novel properties that would be lost if they were in isolation.

This thesis discusses Finnish food policy and in relation to that the food system from a Finnish perspective. The food system is also defined in the Finnish food policy document *Government report on food policy: Food2030 – Finland feeds us and the world* (hereafter referred to as Food2030)(MMM, 2016):

> *"The food system is the complete system of food production and consumption which consists not only of the actors in the food chain, but also the private and public sector bodies and institutions that in one way or another participate in the operations of the system. The food system is a conceptual tool which helps describe the total structure, its parts and operations with all the various links and interactions between them."*

One of the end products of a functional food system is food security. By a FAO definition, people are considered food secure when they have *"availability and adequate access at all times to sufficient, safe, nutritious food to maintain a healthy and active life"*. Different stakeholders might give a food system other functions

and goals as well, as an example, according to the Finnish food policy document Food2030, food system is aimed at creating economical and social wellbeing (MMM, 2016).

Lang (2010) suggests that when aiming at food security, it is not enough to settle for the "three A's" (access, availability and affordability). Instead food policies should be reformulated so that they aim at delivering sufficiency only on ecological terms; factor in all diet-related ill-health; help to create resilient food systems; focus on entire food systems; draw on all sciences (not just the natural sciences); transform how food is produced, distributed and consumed; reframe consumer endeavors towards lower environmental impact and to do all this on democratic means.

2.2 The double burden of current industrial food systems

Changing climate, limited natural resources and growing population are some of the biggest concerns threatening global food systems and thus food security (FAO et al., 2018; Lang, 2010). In the future, the world needs to come up with sustainable means to feed more people with potentially less resources. At the same time, there are some serious negative outcomes from the current food systems that need to be mitigated. These include e.g. depleting soil and constrained ecological and cultural diversity, In current food systems value and money are also unevenly distributed. Small scale farmers make up half of the world's hungry (IPES, 2016) and even in countries like Finland, there are indications that farmers have difficult time making a living. The food supply chain has undergone a shift in power from primary production to the retail sector and customers who enjoy lower food prices. Retailers use a lot of power to gate-keep between the consumer and producer. This causes downward pressure to farmer incomes (Irz et al. 2017: Lang, 2010; Wiskerke, 2009).

Industrialized agriculture and industrialized food systems developed around it have succeeded in providing abundance of products to global markets, but at the same time they create multiple negative ecological, social and economic impacts

that occur along different parts of food chains. Global industrial food system also fails to fulfil one of its most important tasks, which is food security. After some positive progression over recent years, the percentage of the global population going hungry has now increased for a third year in a row from 804 million in 2016 to nearly 821 million in 2018 (FAO et al., 2018). High yields in primary production do not secure food for people if they lack physical, social or economic possibilities to acquire food (Karttunen et al. 2014).

The IPES report has identified some factors or lock-ins that are keeping industrial agriculture as the dominant model for food production. The same lock-ins: e.g. path dependency, expectation of cheap food and export orientation are for the time being still keeping industrial food systems in a dominant position (Figure 1.). (IPES. 2016)

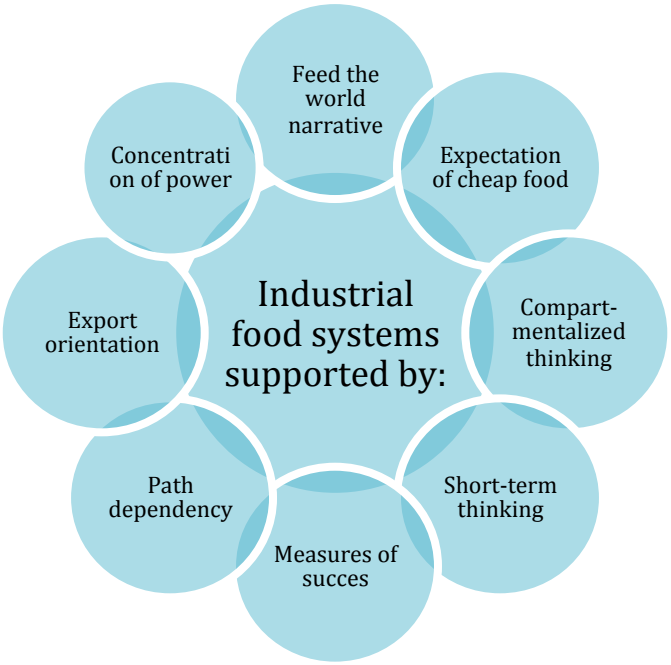

Figure 1. Industrial food systems are kept in dominant position by some very strong lock-ins. Modified from IPES (2016).

Threats to food security that can be considered emblematic in Finland are climate change, growing income disparities, centralized structure of the retail sector and lack of food knowhow (Puupponen et al. 2016, Silvasti & Tikka, 2015). Lack of household skills that are needed to identify and acquire (other than buy), store and prepare food are worsening. Especially people living in urban settlements find it more convenient to outsource their eating (MMM, 2016). In addition, the modern urban way of living separates people from the places of food production spatially, temporally and technologically. This might increase lack of awareness regarding the environmental and health effects of food (Francis et al. 2003).

One signal of food security falling short and thus a sign of dysfunctional food system is the amount of people who are dependent on food aid even in countries like Finland. The Evangelical Lutheran Church of Finland is the largest humanitarian food aid distributor in Finland. According to their own estimation tens of thousands of people per year receive food aid via the church (Silvasti & Tikka, 2015).

Lang (2009) suggests that the world and nations are "locked into the productionist paradigm," which is discussed in more detail in Chapter 2.4. Food Policy. The productionist paradigm and industrialized food systems, that aim to maximize yields, also generated monocultures. Monocultures are an agricultural method that on the upside produce large quantities of desired crop in a limited area and are thus cost-efficient. On the downside monocultures deplete soil and pose a threat to ecological diversity. What is more, Silvasti (2012) suggests that agricultural monocultures and uniform food systems support standardization of diets that lead to the deterioration of cultural diversity, or as Silvasti suggests "monocultures of mind".

Along with the term food system, a term *food chain* is often used to describe the process or path along which the flow of raw materials are turned into food products and consumed at the end of the chain. Food chain as a term connotes a dilemma of "open-endedness"; linear systems require external inputs and produce waste. Distance, logistics and costs make it practically impossible to reuse some of the waste products in chain-type food systems (Francis et al. 2003). Global industrial food systems tend to cause externalities that occur at different ends of the chain, causing e.g. energy- and nutrient disparities or "metabolic rifts" (see e.g. Wittman, 2009). This can be true also for shorter linear chains that do not support a circular principle. As opposed to linear system, in a circular system "inputs as well as waste, emission, and energy leakages are minimized by slowing, closing, and narrowing material and energy loops" (Geissdoerfer et al., 2017), i.e. a circular system is ecologically sustainable by design.

2.3 Agroecological approach to sustainable food systems

Traditionally, agroecology as a term has appeared in the context of agricultural production and referred to the application of ecology in agriculture. Environmental, social, economic, ethical and development issues have become more relevant in recent decades and today the term agroecology is not only used

to refer to an agricultural practice or rural development, but is also used to describe a scientific discipline, a social or a political movement (Wezel et al. 2009). One of the most straightforward definitions of agroecology by Francis et al. 2003 is that "agroecology is the ecology of the food system". As Francis et al. (2003) expand the term agroecology to refer to the whole food system, they suggest agroecology could at best provide solutions on systems level and contribute to development of sustainable societies.

IPES (2016), what is agroecology:

> *"It is a universal logic for redesigning agricultural systems in ways that maximize biodiversity and stimulate interactions between different plants and species, as part of holistic strategies to build long-term fertility, healthy agro-ecosystems and secure livelihoods… it is the opposite of monocultures and their reliance on chemical inputs."*

Agroecological approach to food policy

Also IPES suggests that a reorientation in agriculture, particularly in its relationship with ecosystems, could at best break some of the vicious cycles related to current industrial food systems. According to IPES, one of the key components supporting the paradigm shift from industrial agriculture to diversified agroecological systems is creating strong political priorities (IPES, 2016).

Encompassing the all three dimensions of sustainability in a food policy could, at best, be interpreted as agroecological worldview (Francis et al., 2003). Based on the previous, the writer suggests, that re-organizing global food systems according to "an agroecological mindset", the linkages between food with nature, social environment and health would not be overlooked.

An example of re-organized food system: Palopuro agroecological symbiosis

Koppelmäki et al. (2016) and Helenius et al. (2017) developed the concept of agroecological symbiosis. Palopuro Agroecological symbiosis (AES) is a pilot project operating in the village of Palopuro, Hyvinkää, capital region of Finland. Palopuro AES is one example of a rethought food system. It is a re-localized, nutrient-, energy-, and climate efficient model for a food system where a group of (organic) farms and food processors that are geographically located close to each

other produce local food by obeying the model of circular economy. A report edited by Helenius et al. (2017) suggests an AES could serve as a model and foundation for a future food system, the outcomes of which would also be in line with the objectives set for future food policy (see Chapter 2.8 Goals for 21st century Food Policy). Furthermore, one of the main aims at AES is to reconnect producers and consumers by integrating production, processing and consuming into the local community (Koppelmäki et al., 2016; Helenius et al. 2017).

Organic and local production

Previous Finnish government (from 2011 to 2014) set a strategic objective in their agricultural policy to significantly increase organic production and develop both organic and local food chains in Finland. Though both of the Government Programmes, for Organic and Local Foods, are considered as part of the Finnish agricultural policy, the Ministry of Agriculture and Forestry include these documents under the section of food policy, and thus both of these documents are also included in the content analysis of this Thesis (see Chapter 4.1. Material: Finnish food policy documents).

Organic production is associated with ecological values; recycling of organic fertilizers and diverse crop rotations cause smaller burden on the environment and support biodiversity compared to conventional agricultural methods. In addition organic livestock production allows more species specific behaviour for the animals. EU legislation together with international agreements defines and strictly regulates organic production.

Local food is related to short supply chains that keep places of production and consumption closer to each other. However no generally accepted one definition for local food exists. While organic production potentially has ecological benefits compared to conventional production methods, consuming local food does not necessarily provide ecological advantages, although it has the potential to do so for example by closing nutrient loops. Local consumption has other social and economical benefits that are in line with the agroecological principles such as promoting local breeds and varieties, supporting interaction with producers and consumers and preserving rich regional food culture.

2.4 Food policy

Policy is defined as a plan or course for action. Food policy has a pivotal role in informing different stakeholders within the food system in creating long-term plans and operating principles for the whole food sector. Food policy can be implicitly understood as policy guiding all actions along the food chain. However, historically food policy has mainly concentrated on three things: agriculture (primary production), nutritional aspects (health) and trade (Lang et al. 2009). This chapter presents some more recent definitions for food policy.

The Finnish Ministry of Agriculture and Forestry describes food policy as follows:

> *"The aim of food policy is to promote the population's nutritional status and well-being through food. Food policy covers a broad range of issues concerning the production, processing, distribution and consumption of food. The national economy, public health and the well-being of the environment are all closely connected to food policy decisions."* (MMM, 2018)

The OECD (The Organisation for Economic Co-operation and Development) defines food policy as follows:

> *"…those policies affecting food – its supply and impact – that reflect 'the dominant priorities and objectives of governments"* (OECD, 2017)

And a definition by The World Bank development economists:

> *"Food policy encompasses the collective efforts of governments to influence the decision-making environment of food producers, food consumers and food marketing agents in order to further social objectives."* (Lang et al. 2009)

Lang et al. 2009 highlight the fact that food policy involves diverse actors from local to international level and it is shaped by different disciplinary inputs and outputs from culture to trade and from government politics to social justice. (see Figure 2).

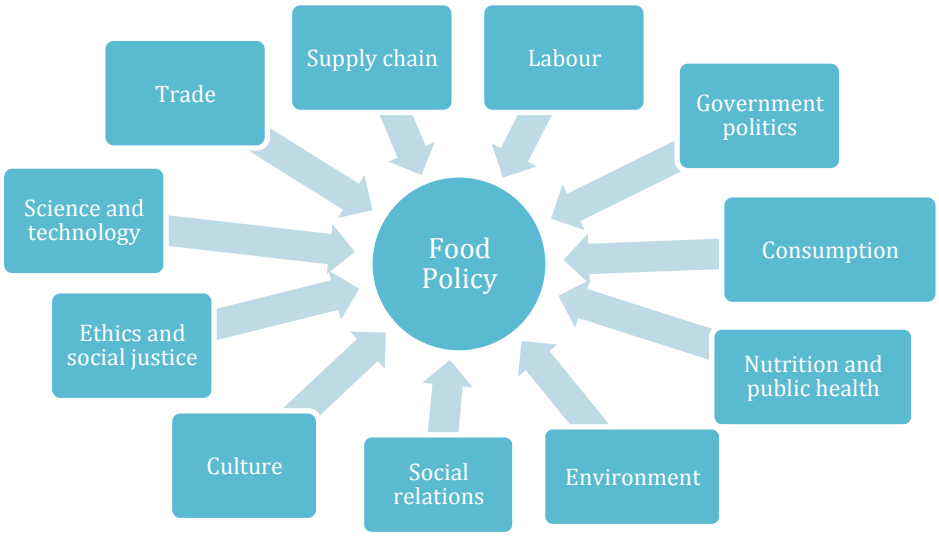

Figure 2. Different stakeholders and disciplines that affect food policy, according to Lang at al. 2009.

Different interest groups have their say on food policy and although the state has a strong role in the policy making framework, food policy is not in a traditional sense ordained, rather it is made and is open for negotiations. It is a contested terrain where different beliefs, knowledge and interests meet (Lang & Heasman, 2004). Food policies have evolved through different eras, they reflect the times in which they are formulated and yet the challenges of the 21st century are forcing food policies to develop again.

Evolving food policy

The *productionist paradigm* gained popularity after the World Wars (1940-50) during a period when more food and better nutrition was desperately needed for growing population. Science and capital were harnessed to increase output and eventually welfare. The role of food policy was to boost the productivity of primary production, but also to make nutritious food more easily available, i.e. lower the costs to the consumers (Lang et al. 2009).

Regarding higher yields *the green revolution,* an agricultural revolution that started a little later in 1960 and increased agricultural production globally, was a success story. However it tied agriculture to an intensive and unsustainable

model. The focus was on high output which was achieved by using high inputs and intensive production methods.

In 1970's several shocks had an influence on food policy. These shocks, namely peaking oil and food prices and famines, revealed the fragility of an oil-based food system. The quality of the food products also gained attention. If the focus had earlier been on quantity over quality, now the health effects of food products as well as environmental aspects of production started moving towards the center of attention. Food policy was questioned by different stakeholders; by economists who claimed that a food system dependent on subsidies does not allow free markets to operate; by academic researchers who claimed that the focus on technical development had outweighed social development and lastly by the civil society who accused public policy failing to acknowledge sustainable limits of growth. As a result, during the 1970's food policy gained a lot of attention and some changes took place: new research bodies and non-governmental organizations emerged and the top-down approach to food policy was challenged. However, governments continued playing key roles in shaping and refining food policy instruments that were mainly aimed at agriculture. (Lang et al. 2009)

In 1980's fragmented interests shaped food policy locally, regionally, nationally and internationally. Food safety crises as well as continuing food insecurity affected many low-income countries, whereas in developed countries rising living standards and marketization had a huge effect on how food was consumed.

Food policies shaping food systems

An IPES report (2016) suggests that the problems created within and along the development of industrial food systems cannot be fixed by trying to improve single outcomes, while leaving untouched the dynamics and power relations that have the potential to reproduce similar problems over time. Current industrial orientation in agriculture and food systems have created the current political and market arrangements and at the same time the current institutional, political and market logics as well as the current mainstream research and innovation serve the business as usual model (Figure 3).

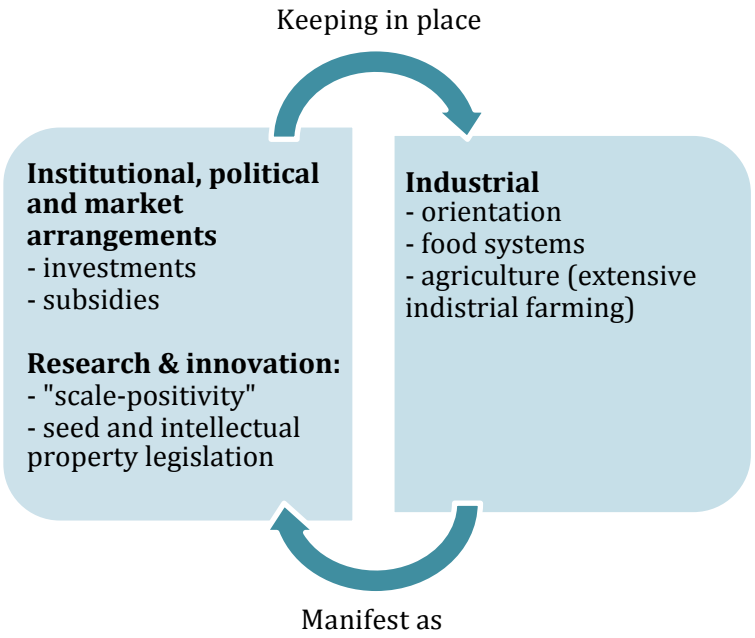

Figure 3. Current industrial orientation in agriculture and food systems is locked-in by some strong feedback loops (inspired by IPES, 2016).

As an outcome, rethinking agricultural production alone cannot solve challenges related to the whole food system, e.g. food insecurity. Instead, challenges in system scales require multi- and interdisciplinary problem solving as well as decision making across policy silos. According to Karttunen (2018) efficient communication and coordination between different administrative and governmental bodies is one of the prerequisites for consistent decision making across the whole food system. Not many countries nor the EU, have yet made an effort to challenge the sectorialised policy organization by creating a common food policy for the whole food sector, however this seems to be a work in progress (De Schutter, 2017).

Different stakeholders and disciplines affecting food policy were summarized in Figure 2. At the same time it is essential to keep in mind that it is not food policy alone that creates and shapes the operating environment of a food system. In fact, there is a multitude of other policies (for example agricultural and trade policies) and regulations (for example food safety and environmental regulations) that affect how food systems are finally shaped (Figure 4.). In addition, consumers and private corporations play roles in how food systems are formed.

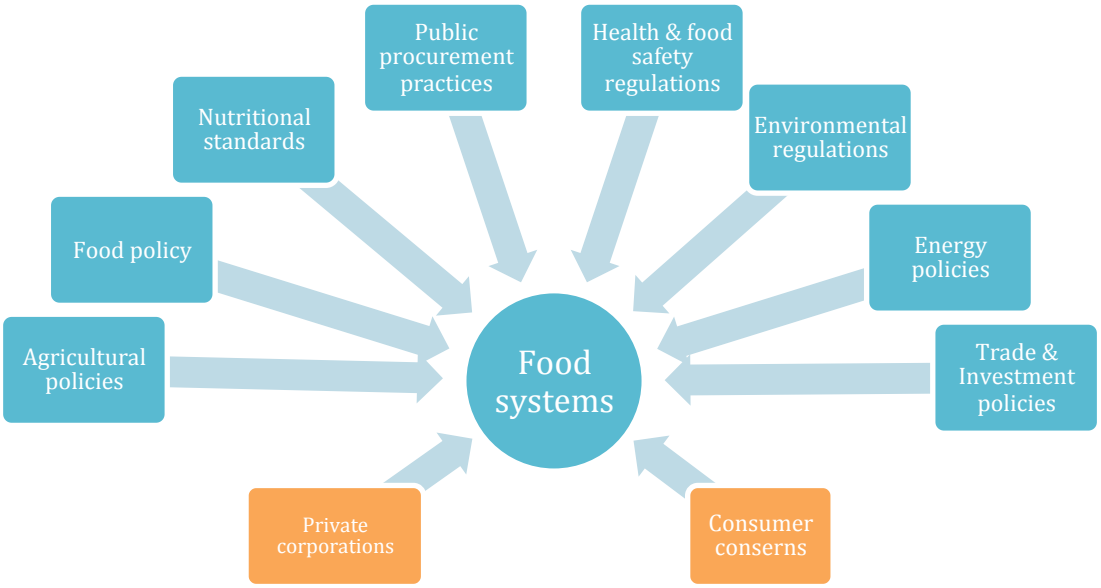

Figure 4. Some of the (policy) influences on food systems. Adopted and modified from IPES (2015)

A change in a complex system like food system affects all flows and feedback loops within the system. Change is expected to be neither fast nor linear. The process is more likely to be unpredictable, iterative in need of adjustments. The narrative of the change can often only be identified afterwards. (Green, 2016)

2.7 Finnish food policy

In Finland, the Ministry of Agriculture and Forestry together with stakeholders from different organizations started reforming Finnish food policy in early 2016. The end product *Government report on food policy: Food2030 – Finland feeds us and the world* (hereafter referred to as Food2030) was delivered to the parliament in late 2016 and for the government's general assembly in early 2017. Food2030 document replaces altogether four previous documents: Huomisen ruoka - esitys kansalliseksi ruokastrategiaksi (Tomorrow's Food – National Food Strategy Proposal 2010, Government report on food policy (2010) Ruokaketjun toimenpideohjelma (Food Chain Action Plan 2011) and Government report on food safety (2013). Together with two separate Government development programmes *for* 1) *organic product sector* (2013) and 2) *local food (2013)* the Food2030 document constitute present-day Finnish food policy.

The aim for the Finnish food policy is defined in the Ministry of Agriculture and Forestry's website and also stated in the Food2030 document:

> *"The aim of food policy is to promote the population's nutritional status and well-being through food"* and "*to guarantee national food security and good nutrition for every resident in the country*" (MMM, 2016).

The starting point for the recent food policy update has been the recognition of current and forecasted changes in the operating environment (listed below). The Food2030 document aims at answering these challenges from the national point of view:

- A global increase in consumer demand,
- Increasing economic inequality of citizens and ageing of the population,
- Changes in the consumption patterns,
- Changes in the geopolitical environment,
- Technological development and digitalisation, and
- The need to adopt sustainable way of using resources.

  (MMM, 2016)

A separately established Food Policy Committee assigned by the Ministry of Agriculture and Forestry, coordinates and implements food related policies in Finnish central government. The committee has representatives from different ministries, organizations, NGO's, trade and industry. One of its tasks is to promote the joint action by the different operators throughout food chain. The committee can nominate and hear experts or expert groups in their work.

2.8 Goals for 21st century Food Policy

Challenges related to future Finnish food system are identified and listed in the Food2030 document. Globally the challenges are similar to the ones listed in the previous chapter, but not limited to those. Climate change and the urgent need to cut greenhouse gas emissions will dramatically affect primary production. In addition, limited natural resources and available agricultural land, depleting fish stocks, global increase in population and consumer demand, urbanization,

changes in the consumption patterns and diets, changes in the geopolitical environment, wars and migration will all affect the way food is produced and consumed in the future. What is more, over-, under- and malconsumption coexist even within the same region or country. (see e.g. Lang, 2010)

In their book *Food Policy* Lang et al. (2009) emphasize the integration of health, environment and society in current and future food policy. What is more, the writers suggest that human and environmental health should be at the very heart of the policy choices (Lang & Heasman, 2004). As a summary, the writers lay out six goals for the 21st century food policy:

1. Achieving sustainability of production on ecological terms
2. Preventing diet-related ill-health (within a sustainable food supply)
3. Harnessing all sciences to address the way food is produced
4. Lowering impact of food production on the environment
5. Achieving international development and social justice
6. Food democracy

The writers remind that these issues should be addressed in all policy frameworks and the responsibility to tackle these questions should not be handed solely to science, markets or other players with powerful interests.

National food policies also need to be in line with global targets related to food security. United Nation's (UN) Sustainable Development Goals (SDGs), adopted in 2015 include universally binding targets such as ending hunger, achieving food security and promoting sustainable agriculture by 2030. The UN report from 2017, *Progress towards the Sustainable Development Goals*, states for example that *"ending hunger demands sustainable food production systems and resilient agricultural practices"*. What is more, sustainable food systems require balanced integration of economic, environmental and social performance and global and national policies need to be in place to support this development. Food security and ensuring national food system functionality are also embedded parts of the national preparedness plan for large scale emergencies. (UN, 2017)

The OECD report *Towards better food policies* (2017) also calls for urgent integrated policy approaches. The report suggests that the food sector should "*simultaneously improve productivity, increase competitiveness and profitability, improve resilience, access markets at home and abroad, manage natural resources more sustainably, contribute to global food security, and deal with extreme market volatility*".

The IPES report *From uniformity to diversity* (2016) also considers the timeline for the reform. The report argues that one of the lock-ins that is keeping business-as-usual practices as well as the industrial food systems in the forefront is short-term thinking. Therefore the report suggests that the scope of food policy and strategies should be at least in year 2030 if not even further.

3. Research objectives

This thesis studies Finnish food policy in time when the global food system is facing pressure on multiple fronts. In order to create change in the current system, it is suggested that it is not enough to just solve individual challenges. Instead, current unsustainable food systems are in need of a holistic reform.
More detailed research questions are:

1. Does Finnish food policy recognise/address the need for systemic change within food system? Is this explicitly manifested in the food policy documents?
2. What has been the main motivation(s) in composing government's current food policy and what are the main drivers suggesting change? Are all three dimensions of sustainability considered?
3. Is the potential need for change anticipated by gradual improvements to the existing food system or are there any cues suggesting radically reimagined and redesigned food systems?

4. Materials & methods

A content analysis was done for current Finnish food policy documents. A content analysis can be considered as an independent research method, but also as a loose theoretical framework that can be combined with different analytical entities (Tuomi & Sarajärvi, 2002).

4.1. Material: Finnish food policy documents

In order to assess the current Finnish food policy and try to find answers to the research questions, it was important to recognize the most relevant documents for the study. The criteria were that the documents are up-to-date, address the Finnish food system as a whole and that they are representative of the objectives of the current Finnish government. Following three documents were selected for the analysis: 1) *Government report on food policy: Food2030 – Finland feeds us and the world*, 2) *Government Resolution: More organic! Government development programme for the organic product sector and objectives to 2020* and 3) *Government Resolution: Local food. But of course! Government Programme on Local Food and development objectives for the local food sector to 2020*.

The list of other potential documents included:

- *Kurunmäki, Ikäheimo, Rönni, Syväniemi. 2012. Lähiruokaselvitys. Ehdotus lähiruokaohjelman pohjaksi 2012–2015. MMM.*
- *Mäkipeska & Sihvonen. 2010. Lähiruoka. Nyt! Sitran selvityksiä.*
- *Tehtävä Suomelle. Miten Suomi osoittaa vahvuutensa ratkaisemalla maailman viheliäisimpiä ongelmia. Maabrändivaltuuskunnan loppuraportti. 2010.*

Most documents were ruled out of the analysis mainly for two reasons: they were either 1) concentrating on one part of the food system only, or 2) characterized as debriefings, informing one of the current three government food policy reports. The three documents that were chosen for the analysis

represent the priorities and objectives of the current Finnish government and constitute current Finnish food policy.

a. Government report on food policy: Food2030 – Finland feeds us and the world

The 42-page document reviews current and forecasted challenges to food system nationally and globally. The main motivation for composing the Food2030 document is said to be current and forecasted changes in the operating environment and the aim is to set out policy objectives, key priorities and activities far into the future.

The document results from the collaboration of the Ministry of Agriculture and Forestry and interest groups and experts inside and outside the central government. The kick-off meeting and workshops (themed: profitability and competitiveness, food security, security of supply, innovations and culture of experimentation, position of primary production) were held in the beginning of 2016. After expert contributions and public commenting in early 2017 the final report was delivered to the parliament, who composed an implementation plan based on the report. The implementation plan is last updated in December 2017. Food2030 replaces altogether four former Finnish food policy documents (MMM, 2016):

- *Tomorrow's Food – National Food Strategy Proposal (Huomisen ruoka - esitys kansalliseksi ruokastrategiaksi, 2010)*
- *Government report on food policy (2010)*
- *Food Chain Action Plan (Ruokaketjun toimenpideohjelma, 2011)*
- *Government report on food safety (2013)*

This Thesis does not include an in depth analysis on organic or local food sectors or policies as such. However, the following two documents: Government Resolutions for 1) organic production and 2) local food sectors were included in the analysis since they are part of current Finnish food policy.

b. Government Resolution: More organic! Government development programme for the organic product sector and objectives to 2020 (May 2013)

The previous Finnish Government (from 2011 to 2014) positioned organic food and organic production as one of the strategic objectives of the agricultural

policy. (MMM, 2013) The 24-page document published in 2013 sets out three objectives: 1) to increase organic production 2) to diversify the range of organic foods available and 3) to improve access to organic food through both retail sector and institutional kitchens. The objectives of this document are not limited to organic production only, but involve food chain from field to fork.

c. Government Resolution: Local food. But of course! Government Programme on Local Food and development objectives for the local food sector to 2020 (May 2013)

The Local food programme has six objectives that also address all stages of food chain from production to consumption. The objectives are 1) to diversify and increase local food production, 2) to improve the opportunities of small-scale food processing and sale through legislation and advice, 3) to increase the share of local food in public procurement, 4) to improve the opportunities in primary production 5) to support closer cooperation between actors in the local food sector and 6) to raise the appreciation of food and actors in the food chain. (MMM, 2013) The report has 32 pages.

4.2 Content analysis using Atlas TI

The content analysis was implemented using Atlas TI software (version 8 for Mac). The software allows the user to perform systematic text analysis by coding the text and subsequently reorganizing and rediscovering the data by using different tools such as queries and co-occurrence tables based on the codes. In practice, coding with Atlas TI is highlighting segments of the text and marking them with appropriate code or codes. A code is a word or other symbol that attempts to capture the content and essence of the text that is being coded. The codes are developed by the researcher and the code development of this study is described in detail in Chapter 4.3.

The highlighted text segments in Atlas TI are called *quotations*. Ideally a *quotation* is a part of text that introduces one topic or idea. In this analysis the *quotations* were most typically one sentence long, with some exceptions. In case two or more consecutive sentences discussed about the same idea, they were highlighted and treated as one *quotation*. In addition, every *quotation* was marked with all matching *codes* as opposed to coding with only the most

appropriate code and thus one *quotation* was typically coded with more than one code. The iterative method, which is presented in Figure 5. contained successive periods of reading the texts and developing the coding system, followed by coding with Atlas TI.

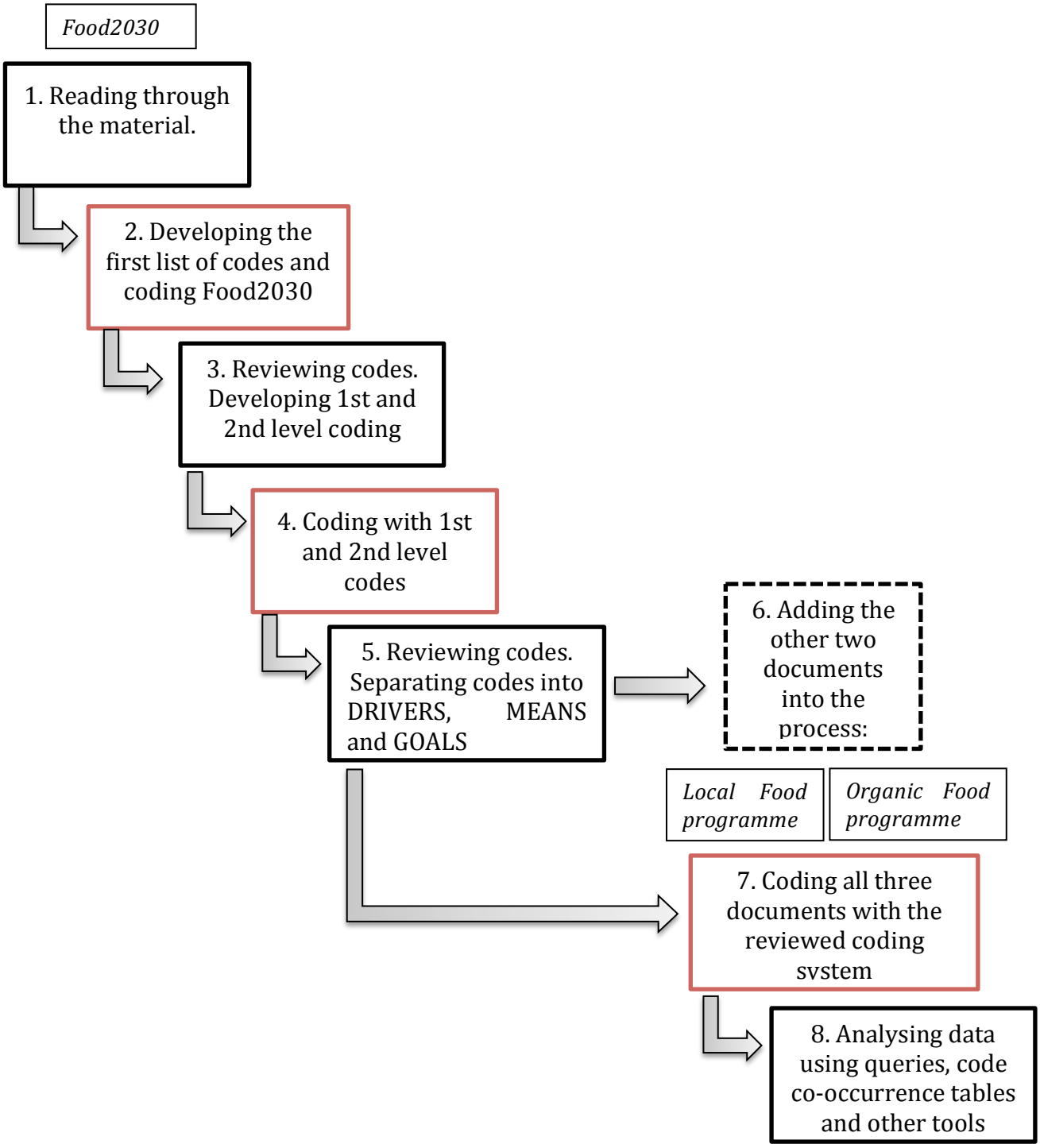

Figure 5. Workflow contained successive periods of desktop work: reading and refining the *codes*, followed by a new round of coding with Atlas TI (boxes with red frames). The coding was created based on Food2030 report and in the end applied to all three documents.

4.3. Code development

The code development started with the Food2030 document. The first tentative list of codes emerged after reading through the Food2030 a couple of times. The codes emerged organically from the text, i.e. they were not developed beforehand or based on any existing framework. This type of approach, where the classification is purely based on the material used, is referred to as content analysis based on grounded theory (Eskola & Suoranta, 1998).

The two other documents were added to the process towards the end of the workflow presented in Figure 5. (Box 6). At this point, the coding system was already quite well developed. However due to the iterative working method the final version of the "code tree" was in the end informed by all three documents.

The overarching theme for the study is food system reformation and the first step in the text analysis was identifying parts of the Food2030 that talk about change; why change is inevitable or why there is a need for reformation (Figure 5.: Boxes 1-2). The codes were designed to reveal the context in which the change was discussed. Based on the analysis the first classification included seven *codes*:

1. Culture, tradition
2. Environment, sustainability
3. Innovation and Technology
4. National economy
5. Regional economy
6. Risks
7. Trends

This list of the seven original codes appeared, non-intentionally, to resemble the different dimensions of sustainability. The next step was to try to arrange the codes under the three dimensions of sustainability: *economic*, *ecological* and *social*. As an example, codes *national* and *regional economy* fitted under an umbrella term *economic* whereas *culture*, *tradition* and *trends* were most likely

to fit under the social dimension. The three dimensions of sustainability were eventually to formulate three first-level codes.

In order to preserve the information contained in the original list of codes, codes such as *innovation* or *risks* were not forced under any of the first-level codes. Instead, some of the original codes were turned into second-level codes, informing and further specifying the first-level codes (Figure 5.: Box 3.). The final list of first- and second-level codes is presented in Tables 1 and 2:

Table 1. Final list of the *first-level codes.*

Code	Description and examples of key words
Ecological (ECOL)	Discusses sustainable use of resources, renewable energy sources, pollution prevention, climate protection, soil health etc.
Economic (ECON)	Discusses productivity and profitability issues, markets, trade, exports, food prices etc.
Socio-cultural (SOCUL)	Discusses demographic issues, cultural issues, people in the food chain as consumers, producers, workers, food citizenship, etc.

The second-level codes contain some of the codes that appeared in the original list of codes. What is more, the list was iterated several times during the code development process and the final list of second-level codes include altogether ten codes: *climate*, *health*, *innovation*, *naecon* (national economy), *policy*, *reecon* (regional economy), *risk*, *societal*, *structure* and *trend*.

Table 2. Final list of the *second-level codes*

Code	Description and examples of key words
Climate	Having to do with prevention and/or preparedness to changing climate and threats caused by climate change, also recognizing potential new business opportunities
Health	Most often having to do with consumption habits and consumer awareness; diverse diets; adequacy of food; adequacy of nutrients; also health risks related to food or environment
Innovation	Presenting new solutions to producing, purchasing, consuming food; technology and digitalization
National economy (NaEcon)	Most often having to do with exports; safeguarding domestic production; finding the most profitable solutions; savings
Policy	Taking into account national and international policies, regulations and agreements regarding food systems; identifying the need to set new type of policies
Regional economy (ReEcon)	Discussing regional development; locality; micro-, small and medium enterprises; rural vitality; diversity
Risk	Crises; risk awareness and management; self sufficiency; vulnerability; food safety; new threats (microbial/other)
Societal	Demographic issues such as ageing of the population; economic inequality; education; employment possibilities in the food sector; food citizenship
Structure	Regional development; globalization vs. localization; new distribution channels; co-operation between different stakeholders in the value chain
Trend	Most often having to do with consumer's food choices; active participation by people in the food chain; megatrends such as urbanization

The spectrum of second-level codes is wide, and not all second-level codes can be allocated under a single first-level code only. Instead the second-level codes were used together with the first-level codes to further define them. Furthermore, one quotation might be coded with two or even more first- or second-level codes if and where appropriate. This is the case especially when one sentence describes both the goals and means to achieve them and they differ from each other. As an simplified example, a coded sentence might discuss about decreasing food waste with information campaigns, where the goal is "food waste reduction" (codes: *goal* and *ecology*) and the means to achieve this is "education" (codes: *mean* and *sociocultural*).

As an end result 418 sentences (or other text entities) from three different documents ended up being coded: 292 from the Food2030 report, 87 from the Local Food programme and 39 from the Organic Food programme. That is, 70% of the coded material came from the Food2030 document and the rest from Local or Organic Food programmes (20% and 10% respectively). Due to overlapping code combinations, the amount of *quotations* in all the three documents together was 567 (see Table 4.).

Changes in the operational environment: drivers, means and goals

While reading the documents, it became evident that the pressure to alter the food system manifests in different ways. The Food2030 document discusses the pushes and pulls influencing current food system, possible means to achieve change, as well as future scenarios or goals. As a third level of coding the quotations were divided into three categories*:* the pushes and pulls into *drivers*, the actions that would lead towards the future wanted state into *means* and descriptions of the future wanted state into *goals* (Figure 5.: Box 5).

Drivers include challenges, threats, opportunities and desires faced by current food system. As an example ”global challenges are ensuring the sufficiency of food, water and energy production while using limited natural resources sustainably”. *Means* answer to questions such as “how to successfully answer to the challenges or to benefit from the evolving opportunities faced by the Finnish food system? *Goals* describe the future wanted state and the vision for year 2030.

Table 3. How change is referred to in the food policy documents.

Category	**Description**
Driver	Drivers include challenges, threats, opportunities and desires concerning Finnish food system.
Mean	How to successfully answer to the challenges or to benefit from the evolving opportunities faced by the Finnish food system? Suggestions for activities that lead to the vision.
Goal	Future wanted state of the food system. How is future described?

Eventually the final coding system included three levels: firstly a categorization into drivers, means and goals, secondly allocating the quotations into one of the three dimensions of sustainability and thirdly further specifying the quotations with the second-level codes. All quotations were labelled according to these three coding levels using the ATLAS TI software. The process is presented in Figure 6.

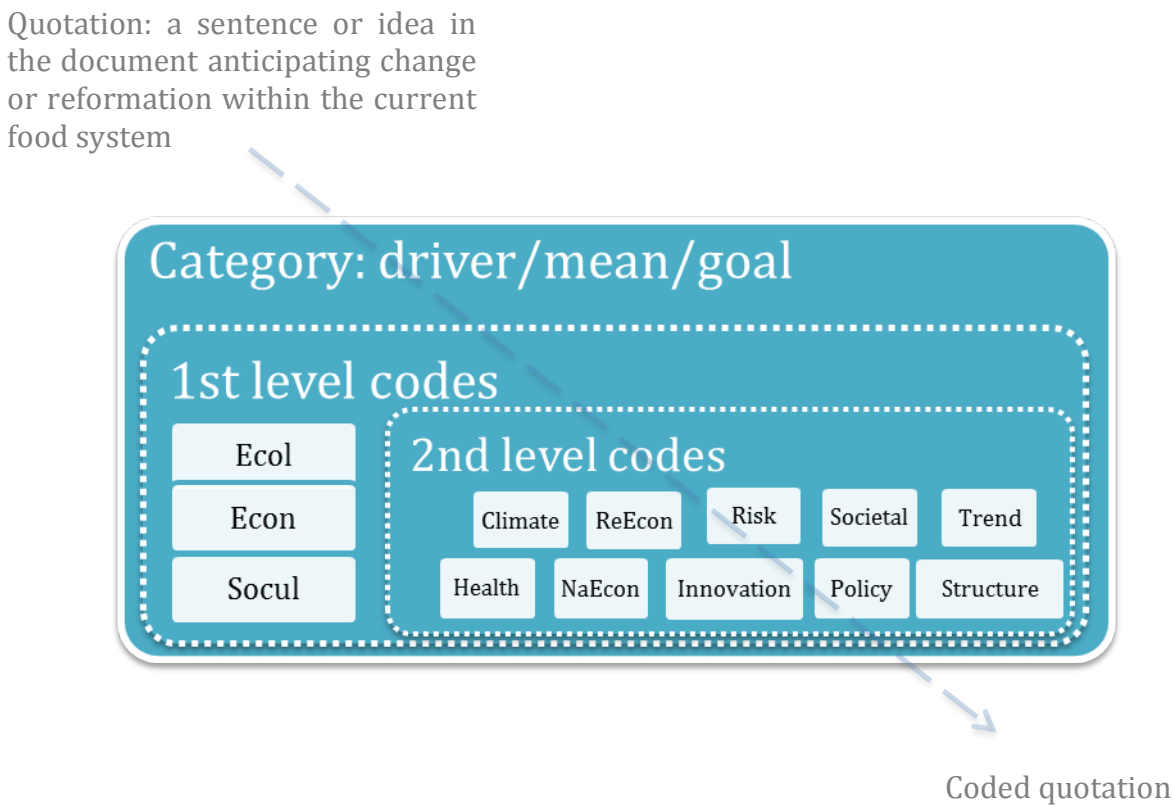

Figure 6. The framework through which each sentence identified with food system change was assessed and coded.

5. Results

This chapter presents results of the text analysis conducted with Atlas TI for the three Finnish food policy documents. The numbers in the Tables and Figures come from Atlas TI and stand for the number of times a *code* or a *co-occurrence* of two or more codes appear in the analysis unless otherwise stated.

The coding was based on identifying parts of the texts (quotations) that refer to food system change. These altogether 567 quotations were coded with 16 different codes (see Chapter 4.3. for code development.). Every quotation is coded with at least three codes with no upper limit for the amount of codes per quotation, which explains the summarized numbers in Table 4.

In the data, change in the food system was referred to in different ways; most frequently it was communicated through the *drivers* of change (219 quotations), secondly through *means* (193 quotations) and lastly through *goals* (155 quotations) (see Table 4). Examples of quotations from all categories are presented in the Appendix A1.

Observing the data through the three dimensions of sustainability: ecological, economic and sociocultural, the results indicate that sociocultural *drivers* were the most important factor supporting the need for change. The economic dimension was emphasized especially in the *means* category, whereas economic drivers and goals also returned lots of hits. The least favoured sustainability dimension in all three categories was the ecological dimension.

Table 4. In the data, *drivers*, *means* and *goals* co-occurred with the three dimensions of sustainability ecological, economic and sociocultural.

	Ecological	**Economic**	**Sociocultural**	**Sum**
Driver	41	74	104	**219**
Mean	31	98	64	**193**
Goal	22	77	55	**155**
Sum	**95**	**249**	**223**	**Total: 567**

Drivers, means and goals and dimensions of sustainability in order of most code co-occurrences:

1. Sociocultural Drivers 104
2. Economic Means 98
3. Economic Goals 77
4. Economic Drivers 74
5. Sociocultural Means 64
6. Sociocultural Goals 55
7. Ecological Drivers 41
8. Ecological Means 31
9. Ecological Goals 22

5.1 Drivers

One of the research questions in this study was "What has been the main motivation(s) in composing government's current food policy and what are the main drivers suggesting change?" The drivers identified in the text analysis included future challenges and threats but also opportunities and desires that are considered to bring value to the food system in the future.

Drivers were mainly identified as sociocultural ones. The share of ecological (41 of 219), economic (74 of 219) and sociocultural (104 of 219) drivers are illustrated in Figure 7. Sociocultural drivers included for example urbanization, ageing of the population and increasing economic inequality, but they also reflected consumer demands; people's willingness for both alternative diets but also alternative distribution channels.

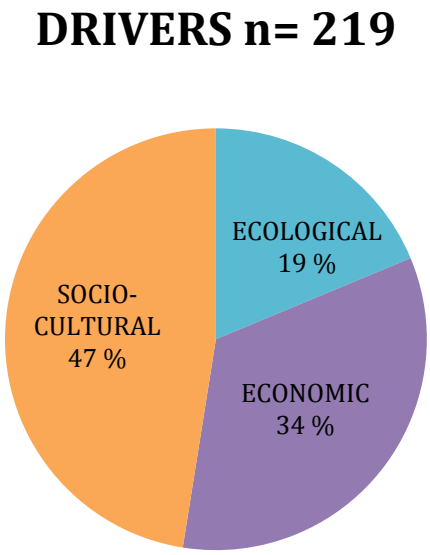

Figure 7. Drivers were mainly identified as sociocultural ones (47% of all drivers). Economic reasons to reform the food system were reflected in little more than one third of the drivers (34%) and ecological reasons in little less than one fifth (19%).

When the ecological, economic and sociocultural drivers were re-examined with the second-level codes (Figure 8.) the results showed that by far most drivers related to sociocultural trends (40 quotations). From the economic point of view, drivers relating to structural changes and national economy accumulated most co-occurrences (18 and 17 respectively). Ecological drivers were mainly associated with the second level codes *climate* or *risk*. However, climate change was not only identified as a risk for the food system (codes *climate* and *risk* appearing together four times). Instead, low carbon or water footprint was also seen as a potential competitive advantage in case of domestic production in the future.

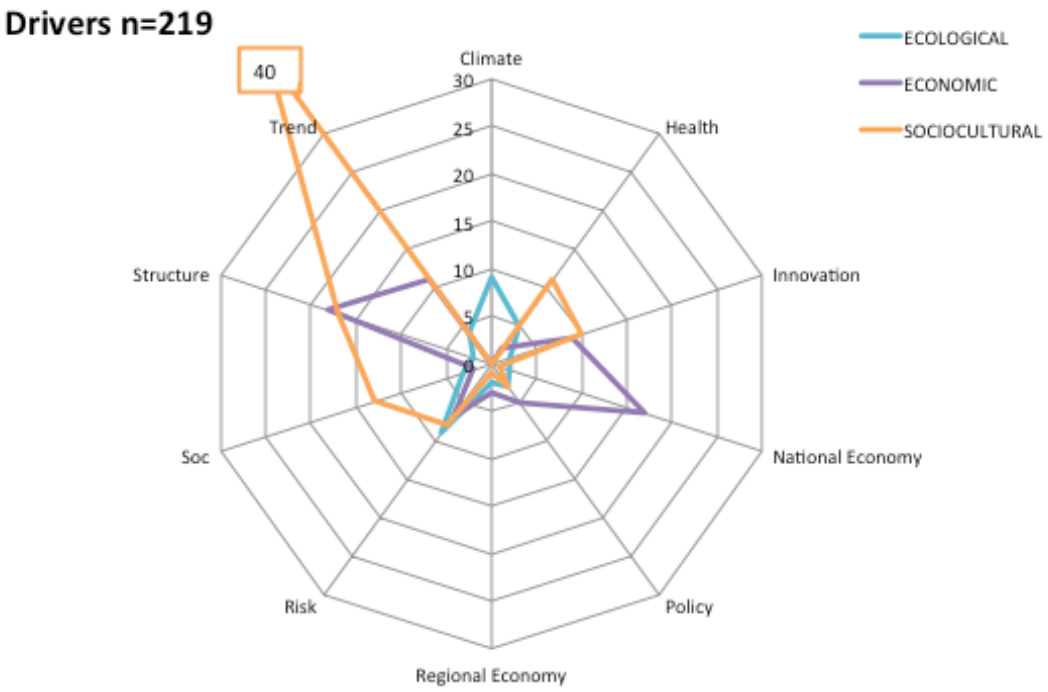

Figure 8. Ecological, economic and sociocultural drivers presented with the more in depth second-level codes.

5.2 Means

The reports also gives suggestions on the way forward; how to reach the vision for 2030; how to successfully answer to the challenges or to benefit from the evolving opportunities faced by the Finnish food system? The shares of ecological (31 of 193), economic (98 of 193) and sociocultural (64 of 193) means to food system change are presented in Figure 9. Means were most often associated with economic scope, which suggests that financial instruments are seen as an apparent tool in shaping the future food system.

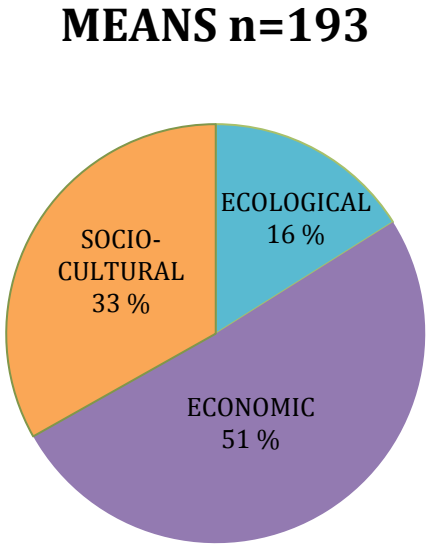

Figure 9. Economic means to reform the food system were reflected in little more than half of the quotations (51%), sociocultural means in one third (33%) and ecological reasons in approximately one sixth (16%).

When the ecological, economic and sociocultural means were re-examined with the second-level codes (Figure 10.) the results show that most economic means related to national economy (25 quotations). Economic means associated with innovation (16), regional economy (10) and policy (11) also appeared in many quotations, as well as means associated with structure (either sociocultural 11, or economic 12). Ecological means did not rank high up in the means-category, although some ecological innovations (8) were also mentioned in the documents.

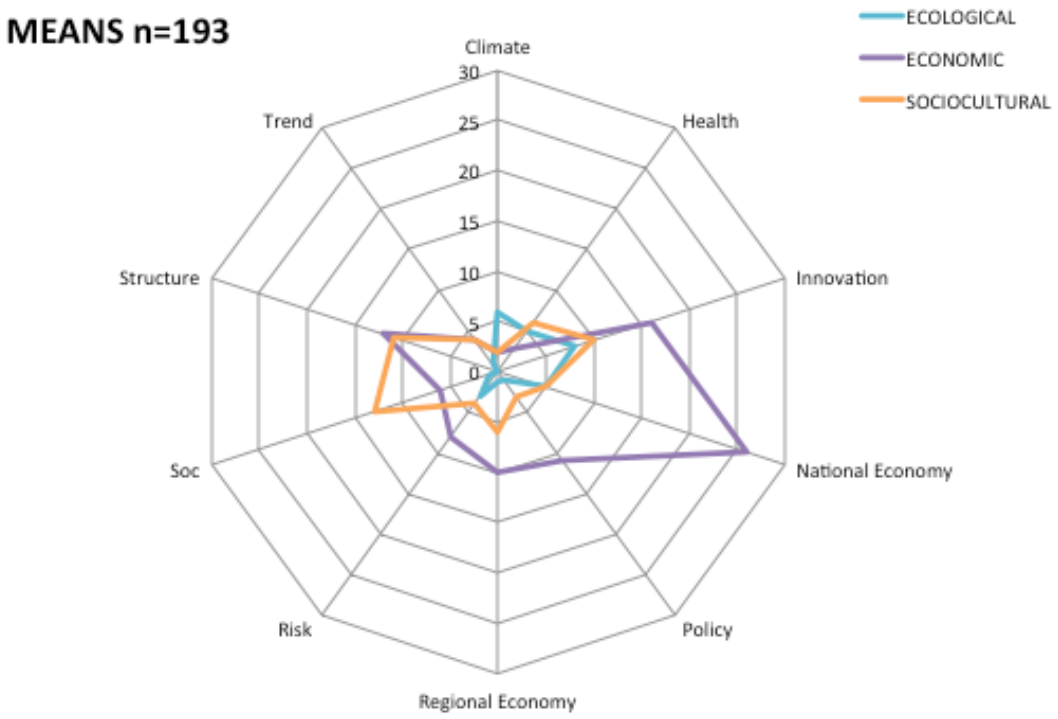

Figure 10. Ecological, economic and sociocultural means presented with the more in depth second-level codes.

5.3 Goals

Goals include attributes of the future Finnish food system and describe the vision for year 2030. The shares of ecological (22 of 155), economic (77 of 155) and sociocultural (55 of 155) goals for the food system are presented in Figure 11. From the total amount of quotations (567), goals accounted clearly less than one third (155), whereas drivers (219) and means (193) seemed to have more emphasis in the change.

Judging by the high share of economic goals (50% of all goals), changes in the food system that are introduced in the documents are expected to serve especially economic interests.

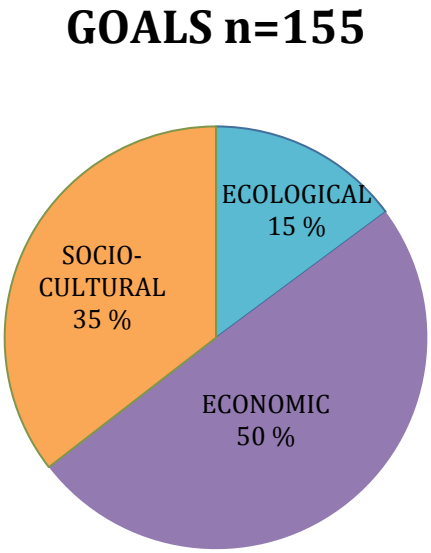

Figure 11. The goals for the future food system were manly identified as economic goals (50%). Sociocultural importance was mentioned in approximately one third (35%) and ecological importance in 15% of the goals.

When the ecological, economic and sociocultural goals were re-examined with the second-level codes (Figure 12.) the results showed that most economic goals related to *national economy* (23 quotations) and many goals were related to *structure* (15). Only few goals related to *ecology* (22), of which five at the same time associated with *national economy*.

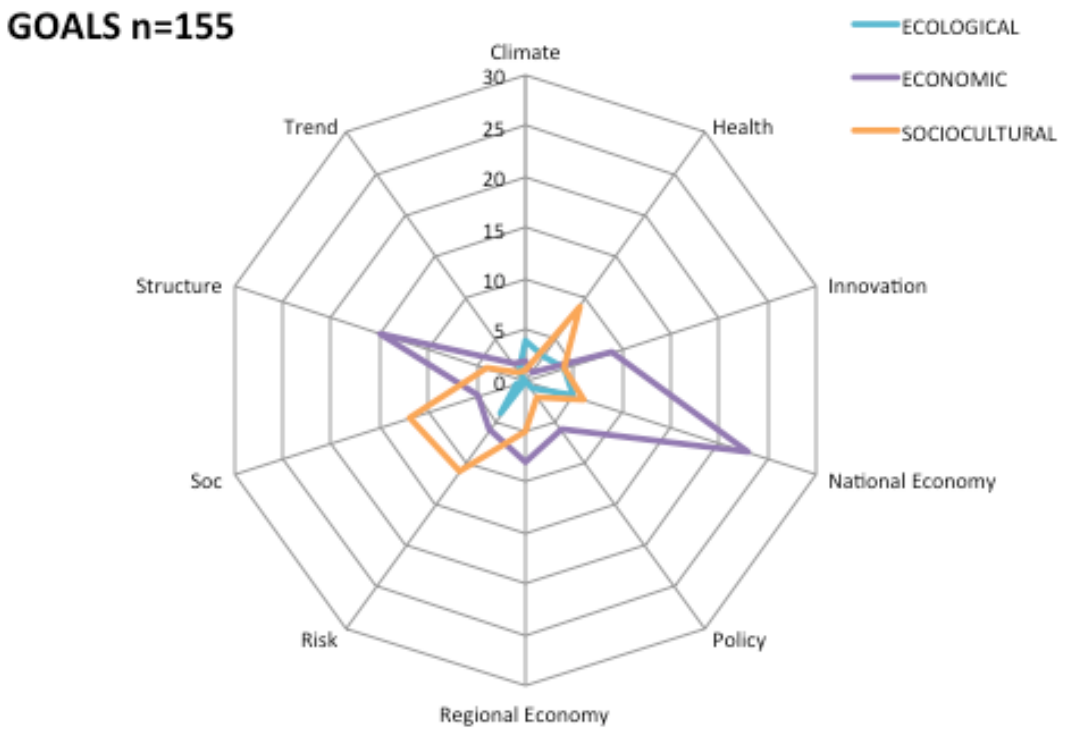

Figure 12. Ecological, economic and sociocultural goals presented with the more in depth second-level codes.

6. Discussion

This thesis studied the current status and priorities of the Finnish food policy. The methodological part of the study asked weather Finland is striving towards more sustainable food system, and how this is manifested in the official food policy documents and government programmes. The content analysis was structured to precisely question the sustainability dimensions of the analysed policy documents. This can also be seen as an agroecological approach to food policy evaluation. Agroecology, when understood in its broader construct encompassing ecological, economic and social dimensions (Francis et al., 2003) provides a framework to evaluate the overall sustainability of a food system.

The assessment rests on a content analysis that was done for three present-day Finnish food policy documents. The analysed documents have been published in years 2013 (the Government programmes for Local and Organic Food sectors) and 2016 (Food2030). The scope of the documents is in year 2030 (Food2030)

or even earlier in year 2020 (the Government Programmes for Organic and Local food sectors).

The main motivation for composing Local and Organic food programmes has been in giving both production methods a strong boost especially due to increased demand. The Food2030, a more comprehensive report taking into account the whole food sector, originates from the current and forecasted changes in the operational environment within and outside Finnish borders. The content analysis revealed the emphases of different drivers, means and goals and how they relate to the three dimensions of sustainability. The results are here discussed in order of importance.

Sociocultural drivers and economic means as the main motivation to food system change

Peoples wishes, demands and visions drive societies, and it is essentially people as consumers who create flows of material and energy also within a food system. The strongest signal to reform the Finnish food system seemed to come from sociocultural drivers. Results indicated that consumers want foods that create experiences, and at the same time people want food to be available effortlessly. Globalization is tweaking diets, but at the same time local foods as well as domestic organic food and alternative distribution channels are gaining popularity. All these things were reflected in the high share of citations with codes *trend* and *structure.* However, when referring to consumer behaviour, market forces should not be overlooked. As Lang & Heasman (2004) suggest, consumers are often under-informed, heavily targeted by marketing as well as victims of price-signals. In other words, what might first seem as consumer primacy might in many cases actually be market domination.

Sociocultural drivers included also changes in the demographic structures. Population growth in Finland will remain stable, and is even expected to start decreasing after 2035 (SVT, 2018). However, immigration, urbanization, growing economic inequality and ageing of the population will cause changes in consumption patterns; what, where and how food is consumed.

Based on the analysis, the way to reach a renewed food system lies heavily on economic means (high share of citations with the code *national economy*). These means, varying from export support systems to exporting more highly processed food items (value added) and increasing food tourism rest on the idea that inserting more money on certain activities is the most effective way to generate more money and capital in the food system. *A competitive* and/or *successful food system* was a term mentioned in many of the quotations.

Exporting Finnish food products was high up on the priority list (MMM, 2018). The IPES report (2016) mentioned *export orientation* as one of the lock-ins that keeps industrial agriculture (specialization in commercial crops) and industrial food systems in place. Prioritizing abundance of cheap food (productionist paradigm) via exports is supported not only by agricultural policies, but also by trade, development and energy policies. Additional food does not however secure good nutrition for all people. Food security cannot be improved by providing sufficient net calories to all people, rather it requires addressing the self-reinforcing power imbalances in current food systems.

The desire to increase exports was introduced side-by-side with the desire to follow the principles of circular economy as a future food production model. Exporting lies heavily on a linear model where production and consumption are geographically separated, which challenges the principles of circular economy: slowing down, closing, and narrowing material and energy loops.

Economic drivers of food system change

In the scope of this study, structural changes in economy refer to the growing role of international markets and trade. Globalization manifests in primary production and food industry via imports of feed and other raw materials. Porkka et al. (2012) describe imports as a strategy to obtain scarce resources. Domestic food production is heavily dependent on imports (energy, feed, machinery) (MMM, 2016; Silvasti & Tikka 2015), and an economic choice would be to look for alternative strategies. Decreasing the dependency on imported resources would also be in line with agroecological values where production and

consumption of food are integrated into the local community. Changes, foreseeable or sudden, in geopolitical environment and in the world market prices were also mentioned.

Together with globalization, growing online trade allows more and more actors to take part in the food system. Being part of this growth requires investments in innovation and technology and might turn into a competitive advantage. On the other hand domestic consumers become more exposed to food frauds as well as new type of food safety risks.

"Finland needs an independent and successful food system"

Competitiveness of the Finnish food system seems to be a high priority, both in the Food2030 document as well as in the implementation plan drafted via stakeholder involvement (workshops and online platforms) in 2018 (MMM, 2018). How does an independent and successful food system look like in a globalized world? Success of the Finnish food system is at least partly planned to be implemented via food exports: *"reducing administrative and technical obstacles to trade in the export market"* but at the same time maintaining the relative proportion of Finnish food in the total available market at as high a level as possible. The competence, profitability, productivity, sustainability and competitiveness of the food system is planned to be based on domestic resources (MMM, 2016). However, the path to decreasing dependency on imports remains unclear.

Sociocultural means and goals to food system change

Examples of sociocultural means to reform the food system mentioned in the Food2030 report were for example educating consumers on sustainable food choices, promoting healthier diets and using research data in order to guarantee responsible production (MMM, 2016). Sociocultural goals were for example maintaining security of supply for all citizens and maintaining lively rural areas.

One of the goals mentioned already in the introduction of the Food2030 report was that the common food policy supports the development of "food citizenship" (MMM, 2016). Food citizenship is defined as "the practice of engaging in food-related behaviours that support, rather than threaten, the development of a

democratic, socially and economically just, and environmentally sustainable food system" (Wilkins, 2005). But is it actually Finnish consumers who use the power in the food system? Silvasti & Tikka (2015) remind that Finland has the most centralized food retail industry in Europe. According to Wilkins (2005) the current industrial food system alone is one barrier to practising food citizenship. Food chains are lengthening and diets becoming more and more uniform. A second barrier, according to Wilkins, is the current agricultural practices and agricultural policies supporting them: subsidy-driven, over-supply of a narrow range of commodities. As a third barrier, Wilkins (2005) mentions policies that make for instance purchasing locally produced food a challenge. The fourth barrier is the increasing power and influence of corporations. Overcoming these barriers require challenging many current policies and business-as-usual approaches.

Ecological drivers means and goals

In all of the three categories (drivers, means and goals) the sustainability dimension that was least referred to was the ecological dimension, despite the fact that there is a large scientific consensus behind the urgency and vastness of certain environmental threats. Steffen et al. (2015) have developed a concept of planetary boundaries, that set certain ecological frames to all action in the planet, or as the writers suggest the "earth system". These boundaries are *climate change*, *biosphere integrity* (earlier biodiversity loss), *land-system change*, *freshwater use*, *biogeochemical flows*, *ocean acidification*, *atmospheric aerosol loading*, *stratosphere ozone depletion* and *novel entities* (defined as "new substances, new forms of existing substances, and modified life forms that have the potential for unwanted geophysical and/or biological effects"). While the first two, climate change and biosphere integrity, are considered to be fundamentally important for all life on earth, overshooting any of these scientifically based boundaries would mean destabilizing the earth system. (Steffen et al. 2015) The developers of the concept remind that planetary boundaries cannot be downscaled to national or regional scale, where policy actions normally take place. However it is still evident that the planetary boundaries need to be respected in all policy making actions while other, more immediate needs of human population need to be fulfilled.

So why aren't ecological concerns emphasized in drafting new food policies, even when they draw limits for the whole food system? Many of the planetary boundaries are directly linked to food production and based on the model by Steffens et al., the biogeochemical cycles of nitrogen and phosphorus, as well as the genetic biodiversity have already exceeded safe operational limits. Deforestation as a means to harness more agricultural land, and climate change are reaching the planetary boundaries. Even if the arctic areas including Finland might somehow benefit from the changing climate, e.g. longer growing seasons and higher yields, there are high risks related to the phenomenon. Warmer climate will likely introduce new pests and weeds and complicate wintertime hibernation of specific crops (Peltonen-Sainio et al. 2017). Extreme weather events are likely to increase and precipitation patterns become harder to predict (Coumou & Rahmstorf, 2012). This will not only affect food production, but will likely have implications on other parts of the food system such as processing, transportation, storage and distribution of food.

For sure the Finnish food policy reports mention ecological sustainability on a general level in many aspects, for example: "finding ecologically sustainably ways to increase agricultural yields", "taking ecological aspects into account when designing support instruments and steering" and "competence in the field of circular economy could bring both economic and ecological benefits". However it seems that the success of our current food system is not defined or limited by the safe ecological operating space, rather it is bound to economical profitability and trade. This is the traditional approach, or as Lang & Heasman (2004) put it; "trade has long been the pole around which agricultural and food politics dance". Present-day Finnish food policy does not give any signal in decoupling the two. For instance, the ecological benefits of alternative food systems like AES are clear and acknowledged (Koppelmäki et al., 2016; Helenius et al., 2017), but it seems we need more studies about how alternative food system models perform economically against current industrial food systems. In addition, we need more studies about the pathways of transition.

Assessment of the source material and method

Several people from different lobbies have been involved in drafting the food policy documents. Open online platforms and workshops were used to gather opinions from the preparation phase all the way to drafting an implementation plan based on the Food2030 report. This type of process inevitably leads to a situation where a wide array of topics ends up being discussed and many decisions are actually compromises of some kind. The positive side in this type of a demographic process is that many voices are being heard and different viewpoints are incorporated in the process. However, it is equally important that the process does not blur the order of importance or the urgency of the goals.

The coding system developed in this thesis does not serve as a generally accepted framework for food policy analysis, instead it is a catalogue framed by the writer, based on the material used. The analysis is intended to give one type of digested overview, or a snapshot, of the current Finnish food policy, and the results are open for discussion.

7. Conclusions

- The main motivation for the Finnish food policy reform comes from the identification of current and forecasted changes in the operational environment, within and outside Finnish borders. The reform is driven mainly by sociocultural trends such as globalization, urbanization and changes in consumer behaviour.
- Based on the policy priorities, the success of the Finnish food system is considered to be dependent on economical profitability, while ecological concerns are being overlooked. This is reflected in the low share of ecological targets set for the food policy.
- Different types of economic means and tools are expected to be of importance in creating a successful food future for Finland.
- The Finnish food policy documents do not introduce any radical means to renew the current food system. However, a complex system like food system includes immeasurable amount of connections and is full of

feedback loops. Creating a change within this type of complex system happens by affecting one of its many parts and thus a change might only be observed and recognized afterwards.

- There is no magic bullet or one model around which we could build our future food systems in order to achieve sustainability in all of its three dimensions. The policy goals of a complex system like food system require multidisciplinary problem solving. The process requires engaging different sectors and levels of governance and using all possible policy levers targeting different parts of the food value chain.

References

Coumou, D., & S. Rahmstorf. 2012. A decade of weather extremes, Nature. Climate Change 2 (7): 491–496. Available online: https://www.nature.com/articles/nclimate1452. Retrieved: 16.11.2018.

Eskola, J. & Suoranta J. 1998. Johdatus laadulliseen tutkimukseen. Tampere: Osuuskunta Vastapaino.

FAO (Food and Agriculture Organization of the United Nations). 1997. Agriculture food and nutrition for Africa - A resource book for teachers of agriculture. Available online: http://www.fao.org/docrep/w0078e/w0078e00.htm#TopOfPage. FAO, Food and Nutrition Division. Retrieved: 12.6.2017

FAO, IFAD, UNICEF, WFP and WHO. 2018. The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition. Rome, FAO. 202p.

Francis, C., Lieblein, G., Gliessman, S., Breland, T. A., Creamer, N., Harwood, R., Salomonsson, L., Helenius, J., Rickerl, D., Salvador, R., Wiedenhoeft, M., Simmons, S., Allen, P., Altieri, M., Flora, C. & Poincelot, R. 2003. Agroecology: The Ecology of Food Systems, Journal of Sustainable Agriculture 22 (3): 99-118.

Geissdoerfer, M., Savaget, P., Bocken, N. M. P. & Hultink, E. J. 2017. Review: The Circular Economy - A new sustainability paradigm? Journal of Cleaner Production 143: 757-768.

Green, Duncan. 2016. How change happens. Oxford Scholarship Online. http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780198785392.001.0001/acprof-9780198785392. 268 p. Retrieved: 11.5.2018.

Helenius, J., Koppelmäki, K. & Virkkunen, E. (ed.) 2017. Agroekologinen symbioosi ravinne- ja energiaomavaraisessa ruoantuotannossa. Ympäristöministeriön raportteja 18/2017. Available online: http://urn.fi/URN:ISBN:978-952-11-4716-6. Helsinki: Ministry of the Environment. 66 p.

Hyvönen, K. 2016. Polkuriippuvuus ja polun luominen lähiruuan kehittämistyössä. Article in Maaseudun uusi aika 1/2016: 41-55. Available online: http://www.mua-lehti.fi/polkuriippuvuus-ja-polun-luominen-lahiruuan-kehittamistyossa/. Retrieved: 2.3.2018.

IPES (The International Panel of Experts on Sustainable Food Systems). 2015. The new science of sustainable food systems. Overcoming Barriers to Food Systems Reform. Available online: http://www.ipes-food.org/images/Reports/IPES_report01_1505_web_br_pages.pdf. Retrieved: 3.6.2017.

IPES (The International Panel of Experts on Sustainable Food Systems). 2016. From uniformity to diversity: a paradigm shift from industrial agriculture to diversified agroecological systems. 96 p. Available online: http://www.ipes-food.org/images/Reports/UniformityToDiversity_FullReport.pdf. Retrieved: 4.6.2017.

Irz, X., Jansik, C., Kotiranta, A., Pajarinen, M., Puukko, H. & Tahvanainen, A-J. 2017. Suomalaisen elintarvikeketjun menestyksen avaintekijät. Publications of the Government´s analysis, assessment and research activities 7/2017. 142p. Available online: https://vnk.fi/julkaisu?pubid=16501. Retrieved: 12.11.2018

Karttunen, K. 2018. Ruokitaan edes itsemme. Selvitys ruokajärjestelmän kestävästä kehityksestä. Helsinki. 84 p. Available online: http://e2.fi/publication/49. Retrieved: 12.9.2018

Karttunen, K, Kihlström, L & Taivalmaa, S-L. 2014. Nälkä ja yltäkylläisyys. Ruokaturva maailmassa. Helsinki: Gaudeamus. 253 p.

Koppelmäki, K., Eerola, M., Albov, S., Kivelä, J., Helenius, J., Winquist, E. & Virkkunen, E. 2016. *Palopuro Agroecological Symbiosis: Local sustainable food and farming Pilot.* Paper presented at the 7th International Conference on Localized Agri-Food Systems. May 8-10, 2016, Stockholm, Sweden.

Lang, T. 2010. Crisis? What Crisis? The Normality of the Current Food Crisis. Journal Of Agrarian Change, 10(1): 87-97.

Lang T. & Heasman, M. 2004. Food wars: the global battle for minds, mouths and markets. UK/USA: Earthscan. 365 p.

Lang, T., Barling, D. & Caraher, M. 2009. Food policy: integrating health, environment and society. UK: Oxford University press. 336 p.

MMM (Ministry of Agriculture and Forestry). 2016. Government report on food policy: Food2030 – Finland feeds us and the world. Helsinki: The Ministry of Agriculture and Forestry. Available online: http://mmm.fi/ruoka2030. Retrieved: 4.5.2017.

MMM (Ministry of Agriculture and Forestry). 2013. Local Food – But of Course! Government Programme on Local Food and development objectives for the local food sector to 2020. Available online: http://mmm.fi/ruoka2030. Retrieved: 30.1.2018.

MMM (Ministry of Agriculture and Forestry). 2013. More Organic! Government development programme for the organic product sector and objectives to 2020. Available online: http://mmm.fi/ruoka2030. Retrieved: 30.1.2018.

MMM (Ministry of Agriculture and Forestry). 2018. Helsinki, Finland: Food Policy. https://mmm.fi/ruoka-ja-maatalous/politiikka/ruokapolitiikka?p_p_id=56_INSTANCE_rUfuELqzq4xV&p_p

_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_count=3&_56_INSTANCE_rUfuELqzq4xV_languageId=en_US
Visited: 20.7.2018.

OECD (The Organisation for Economic Co-operation and Development). 2017. Towards better food policies. OECD work on food, agriculture and fisheries. http://www.oecd.org/tad/policynotes/oecd-agriculture-fisheries-brochure.pdf. Paris: OECD Trade and agriculture directorate. Cited: 10.6.2017.

Peltonen-Sainio, P., Sorvali, J., Müller, M., Huitu, O., Neuvonen, S., Nummelin, T., Rummukainen, A., Hynynen, J., Sievänen, R., Helle, P., Rask, M., Vehanen, T., Kumpula, J. 2017. Sopeutumisen tila 2017. Ilmastokestävyyden tarkastelut maa- ja metsätalousministeriön hallinnonalalla. Luonnonvarakeskus (Luke), Helsinki. Available online: http://urn.fi/URN:ISBN:978-952-326-381-9. Retrieved: 16.11.2018.

Pinstrup-Andersen, P. & Watson D.D. 2011. Food Policy for Developing Countries: The Role of Government in Global, National, and Local Food Systems. UK: Cornell University Press. 400 p.

Porkka, M., Guillaume, J. H. A., Siebert, S., Schaphoff, S., & Kummu, M. 2017. The use of food imports to overcome local limits to growth. Earth's Future, 5(4): 393-407.

Puupponen, A., Paloviita, A., Kortetmäki, T., & Silvasti, T. 2016. Suomalaisen ruokaturvan ulottuvuudet. Sisällönanalyysi ruokaturvasta julkisissa asiakirjoissa. (Dimensions of the Finnish food security: a content analysis of food security in public documents.) Alue ja Ympäristö 45 (1): 39–54.
De Schutter, O. 2017. A food policy for Europe. Green European Journal. Available online: https://www.greeneuropeanjournal.eu/a-food-policy-for-europe/. Retrieved: 21.11.2018.

Silvasti, T. 2012. Ruokapolitiikka. Terveyden, ekologisen ja sosiaalisen yhteyksiä etsimässä. In: Mononen & Silvasti: Hyvä ja paha ruoka. Ruoan tuotannon ja kuluttamisen vaikutukset. Helsinki: Gaudeamus. 320 p.

Silvasti T. & Tikka V. 2015. National Report: Finland. National Media Reports on Food and Nutrition Security. Transmango-project. Available online: http://bit.ly/2tMDGSA. Retrieved: 12.11.2018

Steffen, W., Richardson K.,, Rockström, J., Cornell, S.E., Fetzer, I., Bennett, E.M., Biggs, R., Carpenter, S.R., de Vries, W., de Wit, C.A., Folke, C., Gerten, D., Heinke, J., Mace, G.M., Persson, L.M., Ramanathan, V., Reyers, B. & Sörlin. S. 2015. Planetary boundaries: Guiding human development on a changing planet. Science 347 (6223).

Suomen virallinen tilasto (SVT). 2018. Väestöennuste [web publication]. Helsinki: Tilastokeskus. Available online:

http://stat.fi/til/vaenn/2018/vaenn_2018_2018-11-16_tie_001_fi.html. Visited: 16.11.2018

Tuomi, J. & Sarajärvi, A. 2002. Laadullinen tutkimus ja sisällönanalyysi. 1-2. ed. Helsinki: Tammi Publishers. 158 p.

UN (United Nations). 2017. Report of the Secretary-General, "Progress towards the Sustainable Development Goals" Available online: https://unstats.un.org/sdgs/files/report/2017/secretary-general-sdg-report-2017--EN.pdf. UN Economic and Social Council. Retrieved: 11.7.2017.

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: 503-515.

Wilkins, J.L. 2005. Eating Right Here: Moving from Consumer to Food Citizen. Agricultural Human Values 22 (3): 269–273.

Wiskerke, J.S.C. 2009. On Places Lost and Places Regained: Reflections on the Alternative Food Geography and Sustainable Regional Development. International Planning Studies 14 (4): 369–387.

Wittman, H. 2009. Reworking the metabolic rift: La Vía Campesina, agrarian citizenship, and food sovereignty. The Journal of Peasant Studies 36 (4): 805-826.

Appendices

A1) Examples of quotations with certain code co-occurrences:

DRIVERS

Examples of sociocultural trends that are driving food system change (code combination includes: driver + socul + trend):

"As a counterbalance to globalisation, localisation and, along with it, local foods and their own distribution channels, will increase in popularity" (1:13, codes: driver, socul, trend, innovation)

"internationality is used as a source of inspiration for tweaking familiar foods" (1:144, codes: driver, socul, trend)

"food consumption behaviour changes too and the consumer segments will fragment in the future to become even smaller" (1:123, codes: driver, socul, trend)

" People will want food to be easy" (1:146, codes: driver, socul, trend)

"Growing demand for local food is seen at retail stores which have recognized the value-adding benefits to be derived from local food and, in line with their strategies, increased the range of local foods in their selection." (2:134, codes: driver, socul, trend)

"The consumers are wishing for a larger supply of organic products of domestic origin." (3:14, codes: driver, socul, trend)

Examples of economic issues, especially having to do with structure, national economy and innovation (code combination includes: driver + econ + naecon):

"The production of food raw materials, manufacture and sales are becoming more international. This brings other countries' threats to food safety onto Finnish consumers' plates. Intentional food fraud is becoming more common and affecting food safety and consumer trust. The increase in online sales and other distance selling bring into the market products and actors that are difficult to supervise." (1:34, codes: driver, econ, innovation, naecon, risk, structure)

"Globalisation will commit Finland to being part of international markets to a greater extent than heretofore." (1:95, codes; driver, econ, naecon, structure)

"In the future, free trade will increase competition in EU markets." (1:102, driver, econ, naecon, structure)

"Exports are a precondition for the success of the Finnish food system" (1:220, codes: driver, econ, naecon)

"In the Government Programme the local food sector is clearly recognised as a future growth sector." (2:16, codes: driver, econ, naecon)

"Organic production is one way to improve the competitiveness of the food sector." (3:13, codes: driver, econ, naecon, reecon)

Examples of drivers with ecological scope (code combination includes: driver, ecol):

"The circular economy and sharing economy will have their part to play in the food system." (1:12, codes: driver, ecol, econ, naecon, reecon)

"On the other hand, more and more stringent goals for the sustainability of food production are being set both by the European Union and in international treaties." (1:64 , codes: driver, ecol, policy, climate)

"The number of animal diseases and plant pests will increase with climate change." (1:245, codes: driver, ecol, climate, risk)

"The small carbon or water footprint of products could also be an important factor. Finnish products can be differentiated from their competitors also by the sustainable use of water resources in their production." (1: 357, codes: driver, ecol, climate naecon)

"Besides the beneficial environmental aspects the interest in natural products among the consumers is due to the growing awareness of the positive health impacts of wild berries." (2:60, codes: driver, ecol, socul, health)

MEANS

Examples of economic means (code combination includes: mean, econ):

"Encourage producers to engage in new forms of cooperation with the aim of improving productivity and resource efficiency, creating closer cooperation between producers and consumers, and thus developing the market." (1:10, codes: mean, econ, naecon, reecon)

"Tourism in Finland, and foodstuffs that tourists buy to bring home, are an important source of income, especially in the border regions. Shopping tourism is a good way of introducing tourists to Finnish foodstuffs and food expertise, thus also laying the foundation for actual food exports. Food tourism is one of the worlds strongest growing sectors of tourism." (1:47, codes: mean, econ, naecon, reecon)

"It is important that the companies and organisation that provide export support services cooperate for example when trying to penetrate new export markets. This way, a small country like Finland will have a better

chance of being successful in international competition, in particular with highly processed, greater added value products." (1:151, codes: mean, goal, econ, naecon)

"Prerequisites for improving the competitiveness of the Finnish farming and food sector include both continued structural development along current lines, which makes use of new technologies, along with specialisation and versatile development of farms." (1:103, codes: mean, econ, naecon, structure, innovation)

"The food system must improve its technology skills. Understanding digitalisation and an ability to exploit its possibilities will be a natural part of success in the future." (1:211, codes: mean, econ, socul, innovation)

Examples of sociocultural means (code combination includes: mean, socul):

"On the basis of research data, define how structural development of agriculture and agricultural production can guarantee that rural areas do well and that consumers receive sustainably and responsibly produced, safe and varied foods. (1:11 , codes: mean, socul, societal, structure)

"Promote food citizenship, for example through urban cultivation, local public kitchens, food circle activities and community supported agriculture and fishing as well as through partner farms for schools as well as by going deeper into food policy with different partners." (1:33, codes: mean, socul, policy, structure, societal)

Examples of ecological means:

"Competence in the circular economy will help to identify the ecological framework of the food system and translate it into a competitive advantage." (1:74, codes: mean, goal, econ, ecol, naecon)

"Make strong investments in increasing the volume of sustainably produced crops and promote a significant improvement in average yields of arable plants by good soil management, the development of drainage and irrigation systems, suitable crop rotation and exploitation of the latest production technology." (1:135, codes: mean, ecol, innovation)

GOALS

Examples of most important *goals* that relate to economy and especially national economy:

"Competence in the circular economy will help to identify the ecological framework of the food system and translate it into a competitive advantage. As environmental awareness increases, resource and energy efficiency will be stressed. Material efficiency

will bring cost savings, some of which may be significant." (1:74, codes: goal, econ, ecol, naecon)

"Food exports could help to increase production volumes, achieve lower unit costs, and improve price competitiveness" (1:150, codes: goal, econ, naecon)

"Strive to reduce administrative and technical obstacles to trade in the export market. (1:332, codes: goal, mean, econ, naecon, policy, structure)

"Using food policy instruments to develop food production, processing and distribution channels is vital in order to maintain the relative proportion of Finnish food in the total available market at as high a level as possible so as to keep as high a share as possible of the economic benefits generated by the food system in Finland." (1:170, codes: goal, econ, naecon)

"Lyhyiden jakeluketjujen kautta saadaan tuotteista tuottajille ja jalostajille oikeudenmukaisempaa hintaa" (2:44, codes: goal, econ, socul, recon, structure)

Examples of socioculturally important goals:

"In addition to boosting the production of domestic plant protein, including peas and broad beans, using more fruit and vegetables would also be squarely in line with the objectives related to increasing the consumption of healthy and environmentally friendly plant products." (1:121, codes: goal, mean, socul, ecol, health)

"Appreciation of food is part of the food culture and defines our consumer behaviour. Appreciation of food and familiarity with foods are established at an early stage. We should actively communicate about food issues at home and at school." (1:227, codes: goal, mean, socul, soc)

"…to increase collaboration among actors in the food sector." (1:166, codes: goal, socul, structure)

Examples of goals relating to ecology:

"However, more accurate targeting of the support instruments and emphasis on active production will unavoidably require administrative work and normative steering. At the same time, the conditions must also be established for situations where, for example, cultivation of grass and other methods would reduce the nutrition loading and promote protection of the environment and the climate." (code 1:174, codes: ecol, goal, climate)

"The biological resources of the waters, including algae, will be exploited more diversely and efficiently." (1:249, codes: goal, econ, ecol, innovation)