Food in the Face of Net-Zero Emissions: A Call for Repoliticization

A Juxtaposition of Sweden's National Food Strategy and Climate Policy Framework

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Abstract:

Food is a fundamental human need – a physical requirement for survival. At this historical juncture, the global food system is entangled in a web of neoliberal capitalist exchange relations and suffers a heavy dependence on fossil energy inputs. Today's agro-industrial complex, which has evolved jointly with fossil capitalism and is organized according to its principles, is firmly entrenched. Meanwhile, there is a global political consensus on the need to take action on climate change. In the summer of 2017, the Swedish parliament adopted both the country's first-ever National Food Strategy, which aims to increase Swedish food production by 2030, and as well a Climate Policy Framework, according to which Sweden is to reach net-zero greenhouse gas emissions by 2045. This thesis puts the two policies in dialogue as to single out (in-)compatibilities and silences, drawing on the *What is the Problem Represented to Be?* framework and qualitative content analysis. It concludes that the Swedish efforts to reach net-zero emissions in the food sector while simultaneously achieving an increase in production are based on a political conceptualization of food as 'green sector', which depoliticizes its industrial nature. The actions taken to achieve net-zero emissions are seen to be insensitive to scale, not generalizable on a global level, at odds with environmental justice and founded upon ecologically unequal exchange and environmental load displacement.

Key words: depoliticization, food policy, climate policy, Sweden, WPR

Word count: 17596

When most people […] ask, 'How can we stop global warming?' that's not really what they are asking. They're asking 'How can we stop global warming without significantly changing this lifestyle [or deathstyle, as some call it] that is causing global warming in the first place?'. The answer is that you can't. It's a stupid, absurd and insane question.

(Foster, Clark & York, 2011: 7-8).

No society can become a post-food society.

(Shiva, 2008: 36)

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Abbreviations

BECCS	Bioenergy with Carbon Capture and Storage
CAP	Common Agricultural Policy
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CH_4	Methane
CO_2	Carbon dioxide
CO_2-eq	Carbon dioxide equivalent
CPAP	Climate Policy Action Plan
CPF	Climate Policy Framework
EEC	European Economic Community
EJ	Environmental justice
ELD	Environmental load displacement
EOPB	Environmental Objectives Preparation Board
ESR	Effort Sharing Regulation
ETS	Emissions Trading System
EU	European Union
EUE	Ecologically unequal exchange
EUR	Euro
FDI	Foreign Direct Investment
GHG	Greenhouse gas
ha	Hectares
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
IVA	Royal Swedish Academy of Engineering Sciences (*Kungl. Ingenjörsvetenskapsakademien*)
JI	Joint Implementation
LULUCF	Land Use, Land Use Change and Forestry
NFS	National Food Strategy
N_2O	Nitrous oxide
OECD	Organization for Economic Co-operation and Development
PRINCE	Policy- Relevant Indicators for National Consumption and Environment
Prop.	Government Bill (*Proposition*)
SBA	Swedish Board of Agriculture (*Jordbruksverket*)
SEK	Swedish krona
SEPA	Swedish Environmental Protection Agency (*Naturvårdsverket*)
SOU	Government Official Reports (*Statens Offentliga Utredningar*)
TPES	Total Primary Energy Supply
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WPR	*What's the Problem Represented to be?*

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Initial Statement on Translation and Referencing

In the present thesis, I am concerned with Swedish politics. This requires engagement with Swedish political terminology and translation of it. According to common practice, I directly translate *Regeringsproposition* to Government Bill, which refers to a proposal submitted by the Government (*Regeringen*) to the Parliament (*Riksdagen*). Government Bills are commonly referred to using the short *Prop.*, followed by the parliamentary year of submission and a serial number, for instance *Prop. 2016/17:104.* When making in-text references to specific pages in Government Bills, I use the following style: (*Prop. 2016/17:104: 1).* Swedish Government Official Reports (*Statens Offentliga Utredningar*) – reports by Government Commissions of Inquiry – are referred to using the short *SOU*, followed by the parliamentary year of submission as well as a serial number according to the following format: *SOU 2015:15*.

Unless otherwise stated, all translations of quotes from Swedish political documents are my own.

1. Introduction

Food is a fundamental human need, a physical requirement for survival – what Vandana Shiva (2014: 41) calls "the very stuff of life". The satisfaction of nutritional needs has been at the center of all human civilizations, dictated their social organizations, and influenced their material structures. Likewise, the nature and structure of human civilizations have impacted the ways in which food is obtained, which makes food production often be referred to as one of the most elemental spheres of human-nature interaction.

When discussing the organization of food provisioning and the activities involved therein, it is usual to talk of a 'food system', which widely refers to "all processes involved in keeping us fed" (Johansson, 2005: 16). Throughout this thesis, I use this concept interchangeably with 'food regime', which changes the focus from "the food commodity as an *object* to the commodity as a *relation*, with definite geo-political, social, cultural, ecological, and nutritional relations at significant historical moments" (McMichael, 2009: 281, emphasis in original). At the historical juncture at which we today find ourselves, a large share of the food that ends up on any average Swedish consumer's plate has been channeled through the global industrial food system, which is entangled in a complex web of neoliberal capitalist exchange relations and suffers from a heavy dependence on fossil energy inputs. Similarly, the bulk of food produced in Sweden today is produced using industrial methods, to reach consumers nationally or abroad. Today's global agro-industrial complex – characterized by specialization, monoculture, mechanization, application of agrochemicals, long-distance transport, and large-scale processing and packaging industries – has evolved alongside the fossil-fuel dependent capitalist mode of production and is organized according to its principles (Jarosz, 2000: 279; Foster, Clark & York, 2011; Shiva, 2008; McMichael, 2009).

Meanwhile, looking to the data provided by the Intergovernmental Panel on Climate Change (IPCC), little doubt remains around the fact that human combustion of fossil fuels and resulting emissions of carbon dioxide (CO_2) constitutes the single biggest driving force of the changing climatic conditions experienced today, and those that the coming centuries hold (IPCC, 2018; Huntingford & Mercado, 2016). Accounting for more than 80% of global energy consumption, the burning of oil, coal and gas – products of past photosynthesis – is responsible for 85% of global greenhouse gas (GHG) emissions (Mohr et al, 2014; Carbon Brief, 2019). In the face of

this, there is a wide international political recognition of the need to reduce emissions and transition to renewable energy sources, as is perhaps most significantly reflected in the Paris Agreement, signed by 195 United Nations (UN) member states in 2015 (UNFCCC, 2015).

According to the IPCC, the global food system is responsible for about 21-37% of global GHG emissions, seen to agriculture and land use, storage, transport, packaging and processing, retail and consumption (Mbow et al, 2019: 276). Given that any societal constellation depends on an inflow of energy to maintain its internal structure intact, the energy sources at its disposal constitute a decisive factor to how it is organized (Malm, 2016; Hornborg, 2016). Considering the dominance of fossil fuels in the global energy portfolio and their essential role in modern food production, a global transition to renewable energy sources would presumably imply substantial changes to how societies are structured, and to how food is produced (Huber, 2013; Malm, 2016; Hornborg, 2016).

On June 15th, 2017, Sweden was seen to truly embark on the challenge to reduce its emissions by adopting a Climate Policy Framework (henceforth, CPF[1]), according to which it is legally bound to reach net-zero GHG emissions by 2045 (Swedish Climate Policy Council, 2018). Only a few days later, on June 20th, the Parliament made the historical decision to adopt – independently of the CPF – its first-ever National Food Strategy (henceforth, NFS[1]), to serve as the basis for Swedish food policy until 2030, with the overarching objective to create

> a competitive food supply chain that increases overall food production while achieving the relevant national environmental objectives, aiming to generate growth and employment and contribute to sustainable development throughout the country (Ministry of Enterprise and Innovation, 2017: 11).

Given the absolute fundamentality of our need for food and the fossil-fuel dependency of contemporary food production, I deem it imperative to scrutinize how food is politically conceptualized in the face of the goal to reach net-zero emissions, as well as to single out how the long-term plan for the food domain speaks to the consensus on the need for emissions reductions. Therefore, what I will provide in the chapters to come is an interrogation of the NFS, informed by the aims and measures outlined in the CPF, as to identify connections, contradictions, alignments, silences, and assumptions.

[1] My abbreviation.

1.1 Outline

The thesis is divided into eight chapters and various sub-chapters. This introductory chapter is followed by Chapter 2, which provides a brief overview of industrial food production; the Swedish agro-political context; the NFS; Sweden's current GHG emissions and relevant climate governance mechanisms; and finally, the CPF. Chapter 3 presents my aims, research questions and delimitations. It is followed by Chapter 4, which introduces my analytical framework. The methodology is introduced in Chapter 5, which presents my philosophical stance, positionality, choice of empirical material, as well as methods for data collection and analysis. Chapter 6 contains findings and discussion, and Chapter 7 concludes. In Chapter 8, references and sources are listed.

2. Background

In this chapter, I firstly provide a background to the industrial food system, an overview of the Swedish agro-food context and an introduction to the NFS, to thereafter give an overview of Swedish GHG emissions, relevant climate governance mechanisms, and finally the CPF.

2.1 Industrial Food Production and its Origins

The historical (and present) ways in which humans have provided food for themselves, their families and wider societies have varied (and still do) depending on social and geographical contexts and should therefore not clumsily be referred to as a single global food history. Nevertheless, some general trends relating to social organization and energy use can be seen from the emergence of sedentary food production to the birth of industrial agriculture and the entrenchment of today's global food regime. Here, I outline some of those in broad strokes.

Seen from a wider historical perspective, agriculture is a relatively novel human strategy of harnessing nutritional and material resources from the environment (Hornborg, 2016: 19). For the largest part of human history, livelihoods were supported through hunting and gathering in

small groups, which can be seen to represent a human *adjustment* to the organic functioning of ecosystems, leaving natural cycles and energy flows largely unaltered. With the arrival of a more sedentary social organization came a more widespread *modification* of ecosystems motivated by bigger energy needs in set locations, generating bigger and more concentrated pressures on ecosystems (Hornborg, 2016: 19; Altieri, 1998; Fisher-Kowalski & Haberl, 2015: 106-107).

Up until the 19th century, agricultural production relied on precipitation cycles, as well as recycling of organic matter, crop rotation and poly-cropping to preserve fertility, prevent soil depletion and ensure resistance to pests (Altieri, 1998). In terms of energy, human and animal muscle power remained the only energy subsidies applied in food production in all parts of the world up until this time (Jordan, 2016). With the industrial revolution, however, starting in Britain in the late 18th and early 19th centuries, came mechanization of agricultural production. This meant a transition from solar and muscle power, to an increasing reliance on steam-powered machines, and later combustion engines and motors, powered by fossil fuels (Binswanger, 1986; Jordan, 2016). Coupled with enclosures, industrialization contributed to the creation of vast fields over which ownership was concentrated. Agricultural production was 'rationalized' and geographically specialized, favoring economies of scale. Polycultures were transformed into monocultures, and livestock and crop production were separated (Altieri, 1998; Foster, 1999). Advances in soil science led to the development of inorganic fertilizers, which saw their true upswing after WW2 and the surge of the Green Revolution, when industrially produced agrochemicals started gaining ground (Foster & Magdoff, 1998; Jordan, 2016).

These developments, jointly with later trade liberalizations, have contributed to a global 'de-peasantization', fostered corporate control in agriculture and produced a global food system organized around monocultural specialization based on comparative advantage, at the expense of local means of subsistence (McMichael, 2009; Shiva, 2008). As Trauger (2017: 18) notes, "[i]n the past sixty years agricultural production in nearly every part of the world transitioned to some degree to a modern agricultural system characterized by a vertically integrated market […] economy of food". Commodity chains span across the globe, connecting producers and consumers through complex transport networks. Essentially, the market acts as a provider of inputs such as machinery, fuel, fertilizers and seeds, as well as a distributer of agricultural produce. Modern agriculture is produced by and produces for the global market, and is

sustained by a constant inflow of fossil energy in all parts of the food chain; from agrochemicals, fuel, machinery, transport, processing and packaging (Pfeiffer, 2006). This has enabled an increasing 'supermarketization', where food produced on mass is available irrespectively of season and origin, to consumers with sufficient purchasing power (McMichael, 2009: 287). Geographically, large agribusiness activities tend to concentrate in areas where levels of government intervention and wages are low, and which allows for increases in scale (Bonnano et al, 1994; Johansson, 2005: 18). Looking to foreign direct investments (FDI) in agriculture and related industries between 1990 and 2007, the most important host economies were located in the Global South[2] (Giarratani et al, 2013: 318).

Homogenization of agroecosystems as a result of specialization has disrupted natural synergies, increased pest susceptibility and undermined fertility – creating a greater need for agrochemical inputs (Altieri, 1998; Foster, 1999; McKenney, 2002). Further, chemical inputs have allowed for a selection crops for procreation based on yield performance rather than resilience, which has contributed to genetic degradation of plant varieties and species (Altieri, 1998). As such, despite producing historically unprecedented amounts cheap food for the market, agroecosystems are today more fragile than ever, as a consequence of industrialization and 'chemicalization' of food production (Altieri, 1998).

2.2 The Swedish Agro-Food Context in a Nutshell

2.2.1 A Brief Historical Overview

Swedish pre-industrial agriculture was characterized by mixed family farming (Schön, 2006). Generally, the period between the mid-19th century to the start of WWI is considered as the Swedish "age of industrial revolution" (Kuuse, 1971: 23). The agricultural change it brought about very much resembled the developments described in the previous section, and those of geopolitically similar countries at the time (Flygare & Isacson, 2003: 227; Kuuse, 1971: 25).

In the late 1800s and early 1900s, agriculture constituted the most important economic sector and exports increased drastically (Kuuse, 1971: 23-26). The extension of Swedish arable land

[2] I recognize the contentiousness of this concept. For further discussion, see Mignolo, 2011.

seems to have peaked around 1920, measuring around 4 million ha (Welinder, 1998: 28). The 1930s were characterized by regulation and intervention. Through a price guarantee, farmer's revenues were ensured, and excess production was exported at subsidized prices (Lindberg, 2008). The 1940s saw a reform aiming to stabilize prices, rationalize production and ensure self-sufficiency (Lindberg, 2008). The second half of the 20th century saw a grand shift from mixed farming to specialization and monoculture establishment (Flygare & Isacson, 2003). A parliamentary decision from 1967 articulated that the agricultural sector would produce for economic growth. Consequently, income supports were reduced, and prices were to stimulate effectivization (Flygare & Isacson, 2003: 234). Due to rising prices, the food subsidies and support measures were introduced in the 1970s (Flygare & Isacson, 2003: 242).

Generally, the early industrialized Swedish agriculture was characterized by a constant battle against overproduction, as the demand did not keep up with the pace of effectivization and output growth. In 1985, it was decided that Swedish agriculture would not produce more than what was consumed within its borders and some support measures were withdrawn, which led to insecurities for farmers. This sparked advocacy in favor of a more liberal direction in agriculture (Flygare & Isacson, 2003: 247). A surplus was still produced, and actions were taken to stimulate reduced production. In 1991, a new direction was taken in food politics characterized by market prices and demand-led production – agriculture was to be operated like any other sector Flygare & Isacson, 2003: 254).

2.2.2 Contemporary Swedish Food Policy, Production and Supply

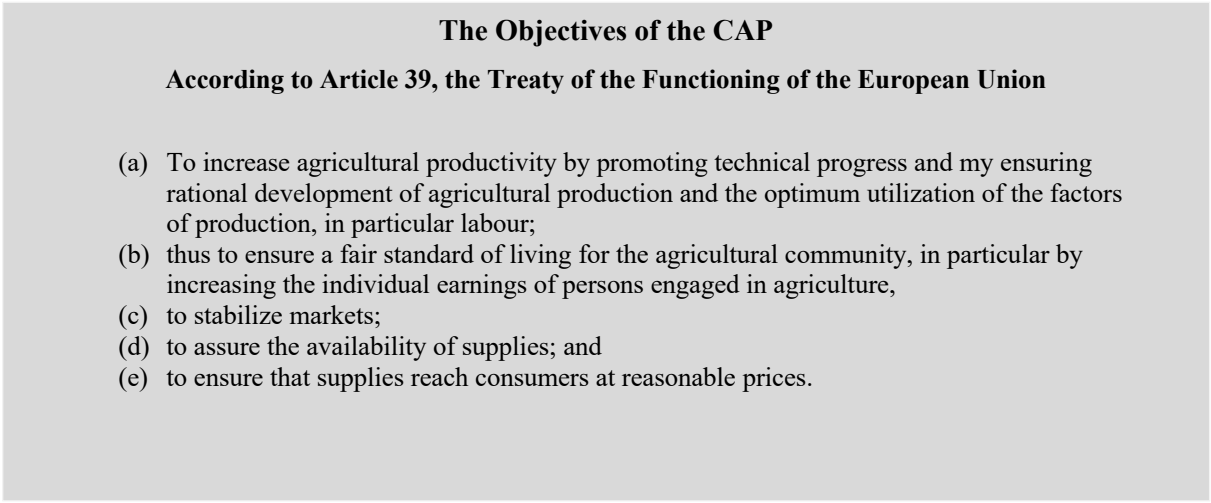
In 1995, Sweden joined the European Union (EU) and thereby entered its Common Agricultural Policy (CAP). The CAP was adopted as a part of the Treaty of Rome signed in 1957, which established the common European market through the creation of the European Economic Community (EEC). The common market was to be based on free movement of capital, goods, services and people. Since this was to encompass also agricultural goods, despite widespread post-war state intervention, national intervention measures in agriculture were transferred to the EEC level (Massot, 2020). In essence, the CAP aims to

> support farmers and improve agricultural productivity, ensuring a stable supply of affordable food; safeguard European Union farmers to make a reasonable living; help tackle climate change and the

sustainable management of natural resources; maintain rural areas and landscapes across the EU; keep the rural economy alive by promoting jobs in farming, agri-foods industries and associated sectors (European Commission, 2020).

Foundational to the policy is the perception of farmers in the EU facing obstacles relative to other sectors. These include lower incomes, the need to adjust to volatile weather and climate conditions, and the inevitable delay between demand changes and farmers' ability to respond (European Commission, 2020). Through its two 'pillars' – income support and market measures (Pillar I) and rural development measures (Pillar II) – the CAP seeks to ameliorate these conditions (European Commission, 2020; Massot, 2020). Importantly, however, the CAP has been criticized for favoring economies of scale on behalf of smallholders, discourage local consumption and for being subject to agri-business lobbying (Via Campesina, 2017).

Figure 1. *Objectives of the CAP*



Source: EU, 2008

The CAP has undergone five important reforms, and since 2016 the reform of CAP post-2020 has been negotiated in the European Parliament (Massot, 2020). As noted by Flygare and Isacson (2003: 255), the objectives of the CAP (see Fig. 1) did not stand in strong contrast or opposition to the Swedish just-adopted direction for the food sector. However, the insertion of the national politics into the European policy frame induced a worry over the competitiveness of Swedish produce relative to those of other member states, which – in hindsight – was legitimate (Flygare & Isacsson, 2004; SBA, 2014). Since Sweden joined the CAP, food prices

have increased less than for other product groups, as a consequence of increased competition and wider range of products available on the Swedish market (SBA, 2014). This has, indeed, generated difficulties for Swedish produce to claim market shares. More generally, since entering the CAP, Swedish international food trade has increased drastically seen to value, for imports and exports alike (SBA, 2014).

However, looking into Swedish food production more specifically, the total production value of the agricultural sector amounted to approximately 59,2 billion SEK in 2017, out of which crop products and animal products accounted for 27.7 billion SEK respectively, and agricultural services for the remaining 3.8 billion SEK (Statistics Sweden & SBA, 2019: 137).

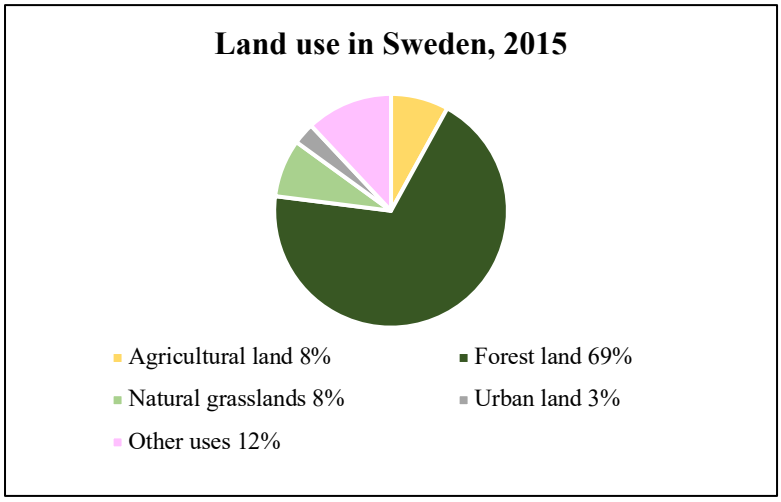
The biggest sector in livestock farming is dairy (for an overview of Economic Accounts for Agriculture, see Appendix I). A trend can be seen where the total number of dairy cows is decreasing, together with the number of dairy farms. Nevertheless, the remaining farms have increased their number of animals (Statistics Sweden & SBA, 2018: 29). This points to a general trend where there, during the last decades, has been a general reduction in the number of farms in Sweden. In 1990, the total number of farms larger than 2 ha was around 96 500, compared to today's 62 900. Today's average farm size is 41 ha, which shows that the decreasing number of farms has been compensated for by an increase in size (Statistics Sweden & SBA, 2019: 27-28; SBA, 2017b). This is attributed to the Swedish entry into the CAP and its support systems (Statistics Sweden & SBA, 2019: 27-28).

According to the OECD (2018: 50), the restructuring of the sector towards fewer and bigger farms, reduced labor inputs and investments in machinery and buildings explains why Swedish agricultural productivity is currently on the rise. Today, farming engages around 2% of the Swedish economically active population, and labor intensity is low (Statistics Sweden & SBA, 2019: 28). However, seen to production values and number of employees, the food industry is Sweden's fourth largest manufacturing industry as of 2016 (SBA, 2018). The total value of the industrial production of agricultural products and foodstuffs in 2017 was 129 164 million SEK, the percentage shares of which are displayed in Fig. 3 (Statistics Sweden & SBA, 2019: 216).

Sweden's total area measures 41 million ha, out of which approximately 3 million ha are farmland. This, in turn, is made up of 2.6 million ha of cropland and 0.4 million ha of pastures, distributed unevenly throughout the country. In *Skåne*, the southernmost region, half of the land

is agricultural, whereas in *Norrbotten*, the northernmost, the share is 0.4% (Statistics Sweden, 2019a: 6).

Figure 2. *Land use in Sweden*



Source: Statistics Sweden, 2019a: 7

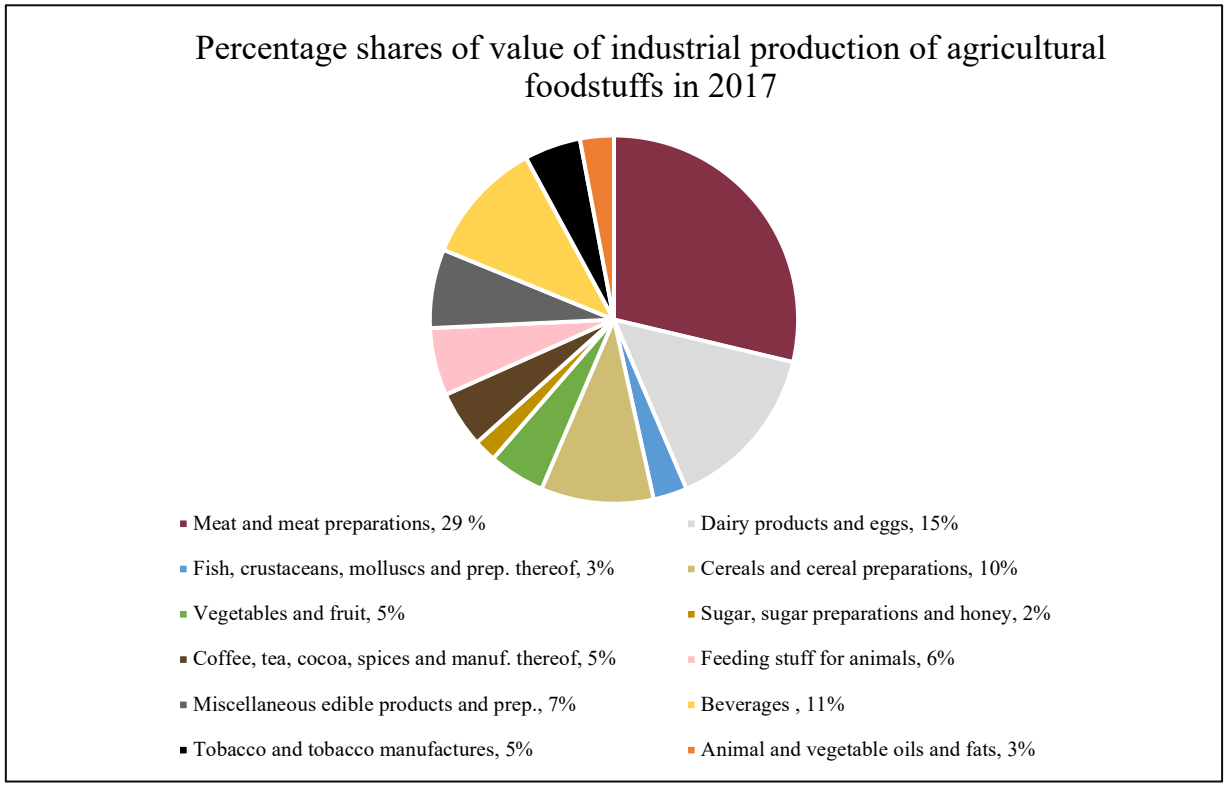
Around 60% of the total cropland is found in the southern plains, whereas animal farming is more common in the central and northern regions (Statistics Sweden & SBA, 2019: 28). Since 1951, the amount of Swedish farmland has decreased by 1 million ha, around 29% (Statistics Sweden, 2019a: 6). Only between 2011 and 2015, around 3000 ha of agricultural land was exploited for other uses (SBA, 2017a: 4). However, the biggest use of arable land in Sweden is grass and green fodder, followed by cereal cultivation and fallow (Statistics Sweden, 2019b). Cereals and leys constitute the biggest share of crop production (Statistics Sweden & SBA, 2019: 28).

In food production, energy inputs are seen in primary crop and livestock production in the form of diesel, fuel oils, and agrochemicals, but also in downstream processing industries and transports (Baky et al, 2013: 7). As of today, Sweden is dependent on imports of such inputs from abroad (Ahlgren et al, 2015: 3; OECD, 2019). Similarly, Sweden is a net importer of food and agricultural products in general. The trade deficit is increasing, but has stabilized in recent years (OECD, 2018: 37). Exports consist predominantly of fish, various food products[3], beverages, cereal and cereal products. Imports, on the other hand, mainly consist of fish, fruit

[3] E.g. soups, sauces, broths, margarine and other cooking fats, processed baby food, ready meals, and semi-finished products.

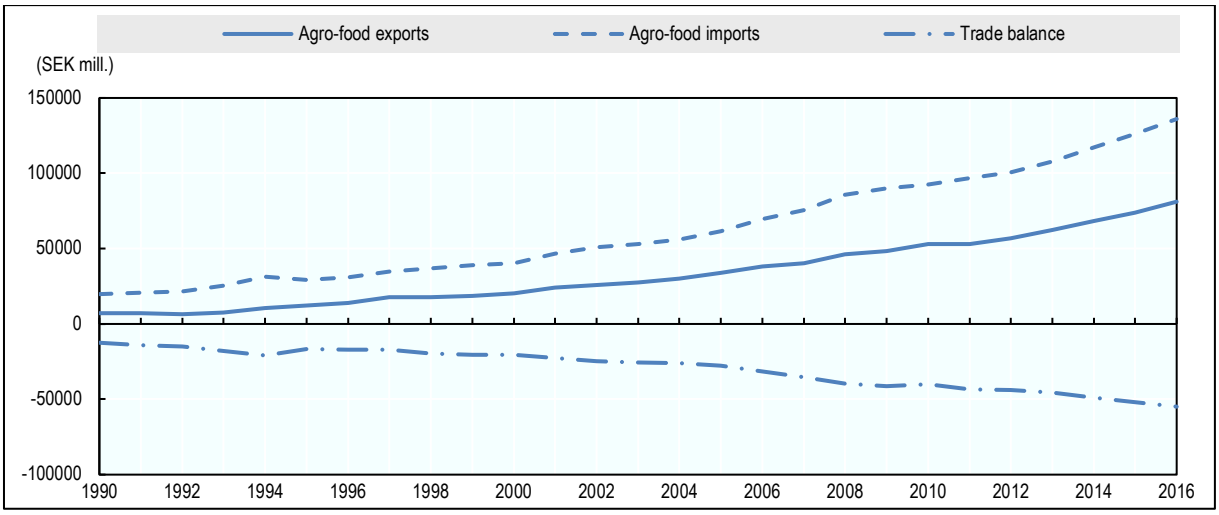
and vegetables, beverages, meat, dairy products and coffee (SBA, 2019) (for data on imports, exports and trade balance by product, see Appendix II).

Figure 3. *Industrial production of agricultural products and foodstuffs*



Source: Statistics Sweden & SBA, 2019: 216

Figure 4. *Swedish agro-food trade, 1990-2016*



Source: Statistics Sweden in OECD, 2018: 38

The agricultural sector accounts for around 13% of Sweden's total emissions. Emissions from agriculture are mainly nitrous oxide (N_2O) and carbon dioxide (CO_2) from agricultural land and fertilizer use; methane (CH_4) from livestock; and N_2O and CH_4 from organic fertilizer storage (SEPA, 2019a). The emissions in agriculture have decreased over time, which is attributed to declining livestock populations, a reduction in land under cultivation, less use of organic and inorganic fertilizers (OECD, 2018: 58; Prop. 2016/17:146: 16; Prop. 2019/20:65: 18). Over the last few years, however, the trend has plateaued as a result of increased cereal production and fertilizer use (Prop. 2016/17:146: 16). However, much of the emissions involved in food production are accounted for in other sectors.

The retail sector – mostly supermarkets, specialized food and convenience stores – represents approximately 68% of consumer food spending (OECD, 2018: 47). Looking to the GHG footprint of Swedish consumption by product group, food (including beverages and tobacco) has the third biggest (PRINCE, 2020). While the domestic emissions from consumption have seen a reduction in recent years, Swedish consumption-based emissions abroad have increased. Today, 75% of the emissions related to Swedish food consumption take place abroad (Prop. 2019/20:65: 102).

2.3 A National Food Strategy for Sweden: More Jobs and Sustainable Growth Throughout the Country

In 2014, the Government made public its intention to develop Sweden's first ever food strategy, which would aim to "create preconditions for growth in the entire food chain and thereby support an increased Swedish food production as well as an increased share of Swedish and organic [produce] in the consumption of food" (Prop. 2016/17:104: 6). However, already in 2013, the previous government had appointed a Government Commission for Competitive Agriculture (*Konkurrenskraftsutrednigen*) to investigate opportunities in the agricultural sector with regards to competitiveness. The Commission's results were presented in 2015 (SOU 2015:15). In the spring of 2015, the government commenced its work to develop a food strategy which would encompass the whole food chain (Prop. 2016/17:104: 1). This work involved engaging with actors along the food chain; in the spring of 2015, meetings in six locations were

held with different actors under the slogan 'the Swedish food dialogue' (Regeringen, 2015; Prop. 2016/17:104: 7).

After lengthy negotiations, Prop. 2016/17:10 *A Food Strategy for Sweden – More Jobs and Sustainable Growth Throughout the Country* was submitted to the Parliament on January 30th, 2017. After having been processed, it was adopted by a broad parliamentary majority on June 20th the same year, aiming to achieve, by 2030,

> a competitive food supply chain that increases overall food production while achieving the relevant national environmental objectives, aiming to generate growth and employment and contribute to sustainable development throughout the country. The increase in production – of both conventional and organic food – should correspond to consumer demands. An increase in production of food could contribute to a higher level of self-sufficiency. Vulnerability in the food supply chain will be reduced (Prop. 2016/17:104: 1).

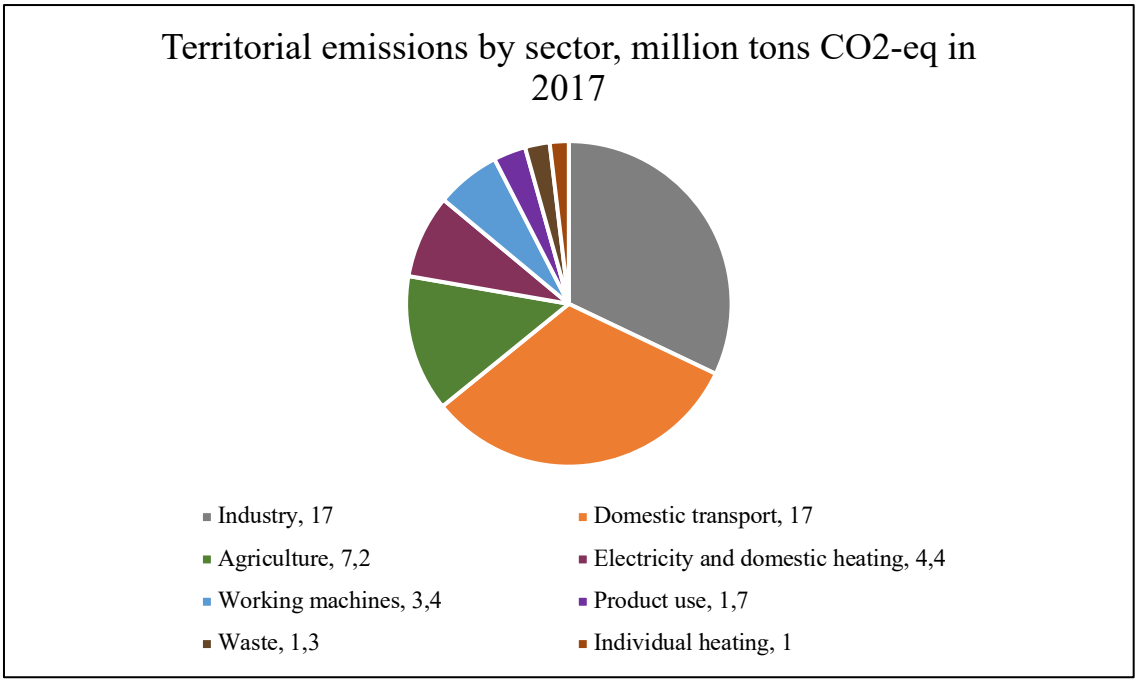
In addition to this overarching aim, the NFS identifies three strategic areas –*Rules and regulations*, *Consumers and markets* and *Knowledge and innovation* – and sets an objective for each area. However, the Bill itself does not include proposals for how to achieve its objectives. Instead, those are gathered in complementary action plans, to be updated continuously. The first action plan, presented in 2017 lists actions to be taken 2019, when it was substituted with a new plan presenting measures to be taken up to 2025 (Ministry of Enterprise and Innovation, 2017; 2019). While the NFS and the issue of food production will be returned to in the Chapter 6, I now turn to Swedish GHG emissions, climate policy and the CPF.

2.4 Swedish Greenhouse Gas Emissions and Climate Policy: An Overview

Statistics on Swedish GHG emission development are available from 1990, when the emissions measured 74,9 million tons carbon dioxide equivalents (CO_2-eq). As of 2018, the total GHG emissions from the Swedish economy amounted to approximately 63,8 million tons CO_2-eq. This number includes all economic sectors, including international transports (Statistics Sweden, 2020). If international transports are excluded, the emissions amounted to 51,8 million tons CO_2-eq in 2018, which is the number the government officially uses for territorial

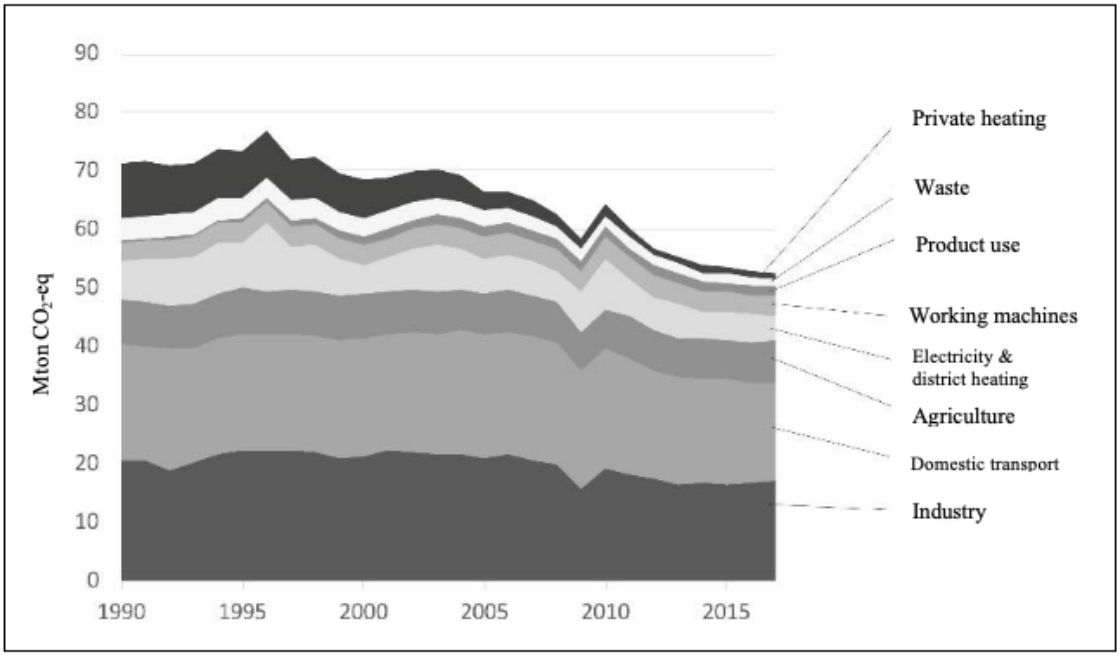
emissions (Prop. 2019/20: 65: 14). The biggest GHG producing sectors are industry and domestic transport, responsible for 16.7 and 16.5 million tons CO_2-eq respectively (Statistics Sweden, 2020).

Figure 5. *Territorial emissions by sector*



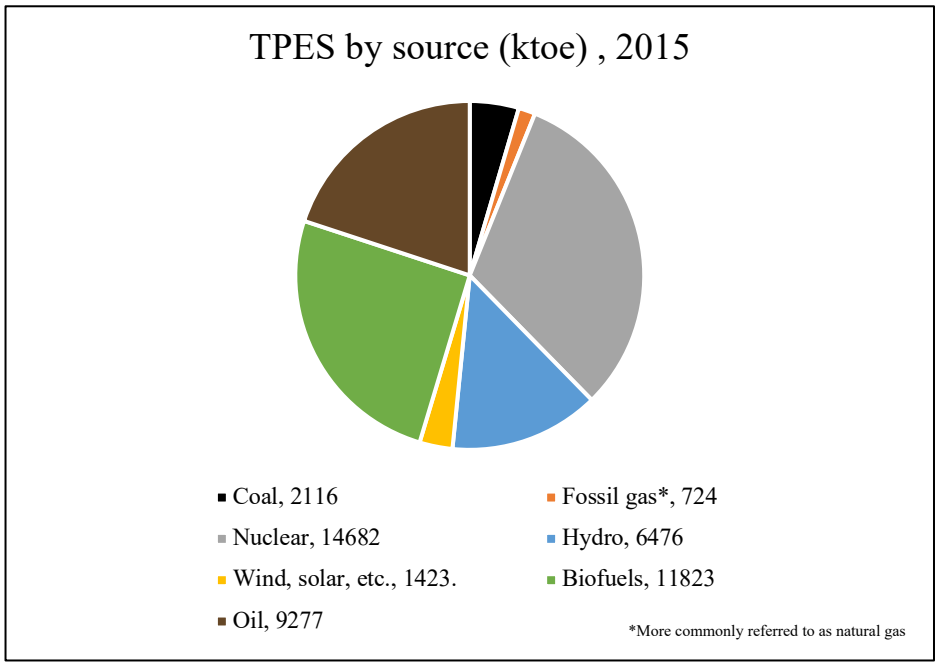
Source: Prop. 2019/20:65: 16

Figure 6. *Territorial emissions development per sector, 1990-2017*



Source: Prop. 2019/20:65: 16 (my translation)

Figure 7. *TPES by source*



Source: IEA, 2020

Looking to Sweden's energy mix, its total primary energy supply (TPES) (which includes the total disposable energy, including produced and imported) consists to the largest part of nuclear, followed by oil and biofuels (IEA, 2020). Seen to energy for electricity production, the largest shares are represented by from nuclear and hydropower (ibid). The biggest energy consuming sectors in 2018 were industry and electricity followed by transport and residential uses (IEA, 2020).

Several political instruments influence Swedish emissions. Despite it being impossible to determine exactly when and where climate change was first articulated as an international political concern, its international political recognition is often considered to have been marked by the UN Conference on the Environment held in Rio de Janeiro in 1992, which resulted in the adoption of the UN Framework Convention on Climate Change (UNFCCC, 1992). The UNFCCC aims to achieve a "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC, 1992: 9). However, it is not legally binding, and lacks enforcement mechanisms. In 1997 the Kyoto Protocol to the convention established legally binding targets for

industrialized[4] countries and entered into force in 2005 (UNFCCC, 1997). However, it allows for compensation of emissions through flexibility mechanisms such as Joint Implementation (JI) and Clean Development Mechanism (CDM), whereby national targets can be met by investing in climate projects overseas (ibid).

Most recently, the Paris Agreement within the UNFCCC, reached in 2015, aims to hold ”the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels” (UNFCCC, 2015: 3). As party to the UNFCCC (and as signatory of the Kyoto Protocol and the Paris Agreement) Sweden’s climate policy is formulated within its frames. Furthermore, as member of the EU, Sweden falls under the Union’s ambition to reach net-zero emissions by 2050. As EU members, Sweden also part-takes in its the system for emissions trading (EU ETS), established in 2005. The scheme covers around 45% of EUs total emissions from industry, electricity production, heating and aviation. It works according to a ‘cap and trade’ principle, where a cap is set at a certain emission level as to reduce the total emissions by the member states. Within the cap, the members of the system trade so-called ‘allowances’– rights to produce GHG emissions equivalent to 1 ton of CO_2-eq. Over time, the cap – and thus the number of allowances – is set to decrease, so as to reduce the total emissions of the covered sectors. Today, the GHGs covered are carbon dioxide (CO_2), nitrous oxide (N_2O) and perfluorocarbons (PFCs) (European Commission, 2015).

Allocation of allowances within the EU ETS is done either through free allocation or through auctioning. Free allocation is a form of subsidy applied when there is a risk of ‘carbon leakage’ – that production is moved elsewhere, where climate governance mechanisms are weaker – would the participant in question pay the full price for the allowances needed. Most allowances, however, are obtained at auctions or traded between participants (European Commission, 2015). Around 80% of emissions from Swedish industry and 90% of emissions from electricity production and district heating are covered by EU ETS. The Swedish emissions in these sectors measured 19,7 million tons of CO_2-eq in 2015 (Prop. 2016/17:146: 14).

Importantly, the remaining 55% of total emissions not covered by the trading system are instead included in the EU Effort Sharing Regulation (EU ESR). Those include emissions mainly from domestic transport, buildings, machinery, smaller industrial and energy plants, agriculture and

[4] Terminology used by the Protocol.

waste (Erbach, 2018). The EU ESR establishes binding annual emission targets for member states. Emissions within the EU ESR cannot be traded, but the regulation offers some flexibility in that it gives members that reduce their emissions more than their annual target the opportunity to transfer surplus allocations to other member states under certain conditions (ibid). Moreover, member states are, as of today, allowed to make use of international credits from the Kyoto flexibility mechanisms under certain conditions, to comply with their ESR commitments (Erbach, 2018). Furthermore, uptakes in the Land Use, Land Use Change and Forestry (LULUCF) sector can be drawn on to compensate for emissions. According to established regulations, member states are obliged to balance uptakes and emissions in this sector. However, increased net-uptakes can be used as a compensatory mechanism. Within the EU ESR, Sweden is assigned the most ambitious emissions reduction target, which is -40% by 2030 as compared to 2005 levels (EU Regulation 2018/842).

Zooming in on the national level, Sweden's climate goals are integrated in its national Environmental Objectives System, constituted by an overarching Generational goal and 16 Environmental Quality Objectives, which set the direction for the national environmental and climate policy. The Generational Goal reads

> The overall goal of Swedish environmental policy is to hand over to the next generation a society in which the major environmental problems in Sweden have been solved, without increasing environmental and health problems outside Sweden's borders (SEPA, 2019b).

Each of the 16 Environmental Quality Objectives have milestone targets associated with them, as to facilitate the reaching of the overarching goal (for a summary of the Environmental Quality Objectives, see Appendix III). Only one of them, *Reduced climate impact*, relate directly to climate. In 2009, it was complemented by a milestone target to be reached by 2020, where an emission reduction of 40% compared to 1990 was to be reached (Prop. 2008/09:162). In July 2010, a parliamentary board – the Environmental Objectives Preparation Board (EOPB) (*Miljömålsberedningen*) – was formed with the aim to by 2020 present how Sweden's environmental quality objectives and generational goal were to be reached (Prop. 2016/17:146: 7). An additional directive from the government in 2014 further tasked the EOPB with developing a Climate Policy Framework. Based on what was prepared by the EPOB, the government submitted Prop:2016/17:146: A Climate Policy Framework for Sweden to the parliament in 2016.

2.5 The Climate Policy Framework: Net-Zero Greenhouse Gas Emissions by 2045

The adoption of government bill Prop: 2016/17:146: *A Climate Policy Framework for Sweden* in 2017 implied the biggest climate reform in Swedish political history. Integrating three elements – new Climate Goals, a Climate Act and a Climate Policy Council – the framework sets the course for Swedish climate policy and provides "the long-term conditions to implement the transition needed to address the challenge of climate change" (Ministry of Environment and Energy, 2017: 2).

In terms of climate goals, the Framework firstly adds a specification to the broadly defined environmental quality objective *Reduced climate impact*. Informed by the Paris Agreement, it reads: "The increase in global average temperature is to be limited well below 2 °C above pre-industrial levels, and efforts are to be pursued to limit the increase to 1.5 °C above pre-industrial levels. Sweden will work internationally for global efforts to be directed towards achieving this target" (Prop. 2016/17:146: 24). In addition, the Framework presents a new set Climate Goals, consisting of one overarching goal for Sweden's total emissions to be reached by 2045; two goals for the emissions in the country's ESR sector to be reached by 2030 and 2040 respectively; and a goal for the emissions in the transport sector to be reached by 2030. All these targets constitute milestone targets to the environmental quality objective *Reduced Climate Impact*.

The main and overarching goal states that: "Latest by 2045, Sweden should have no net greenhouse gas emissions to the atmosphere, and thereafter reach negative emissions" (Prop. 2016/17:146: 25). To reach net-zero emissions, complementary measures can be drawn on. However, the emissions from activities on Swedish territory should be at least 85 percent lower than in 1990 (ibid). This long-term target encompasses emissions from all activities in Sweden, excluding those that are part of the EU ETS system, and emissions and uptakes in the LULUCF sector and emissions from aviation and maritime bunker fuels (Prop. 2016/17:146: 25, 28). As for the LULUCF sector, the government states, "a potential total increase in net uptakes within the LULUCF can be used as a so-called complementary measure to reach net-zero emissions or net negative emissions on a longer term", in line with international or European regulations (Prop. 2016/17:146: 25, 28, 34). Other possible complementary measures are investments in

climate projects abroad and bioenergy with carbon capture and storage (BECCS) (Prop. 2016/17:146: 32). The overarching goal also allows for the use of carbon capture and storage (CCS) technologies to reach zero emissions from fossil fuels, in cases where no other alternatives are deemed reasonable (Prop:2016/17:146: 25). As such, becoming net-zero emitters or 'climate neutral' implies arriving at zero when balancing the Swedish GHG emissions with the amount of GHGs it removes from the atmosphere. Following the same logic, *negative emissions* are in the framework taken to mean that Sweden's territorial emissions are "less than, for example, the amount of carbon dioxide absorbed by nature as part of the ecocycle, or less than the emissions Sweden helps to reduce abroad by investing in various climate projects" (Ministry of Environment, 2017).

The two economy-wide milestone targets to the overarching goal of the CPF regulate the GHG emissions in the ESR sector in Sweden, and state that these must be 63 percent lower than in 1990 by 2030, and 75 percent lower than in 1990 by 2040. A maximum of 8 percentage units can be covered by complementary measures for 2030's goal, and a maximum of 2 percentage units for 2040's goal (Prop. 2016/17:146: 29). The ESR sector's emissions for 1990 are calculated by subtracting the approximate emissions from the sectors that are now part of the EU ETS from the year's emissions total. If changes are made to the EU ETS, the milestone targets will be reconsidered (Prop. 2016/17:146: 29). The agricultural sector and transports account for most emissions in the ESR sector, and the government perceives the reduction potential to be biggest in the transport sector. The fourth and last target milestone target, therefore, concerns the transport sector. It states that the GHG emissions from domestic transport will decrease by a minimum of 70% in 2030 compared by the 2010 levels (Prop. 2016/17:146: 35). This is motivated by transport accounting for half of the emissions in the ESR sector. The goal does not include international aviation, since it is covered by the EU ETS system.

Figure 8. *Summary of the four Climate Goals outlined in the CPF*

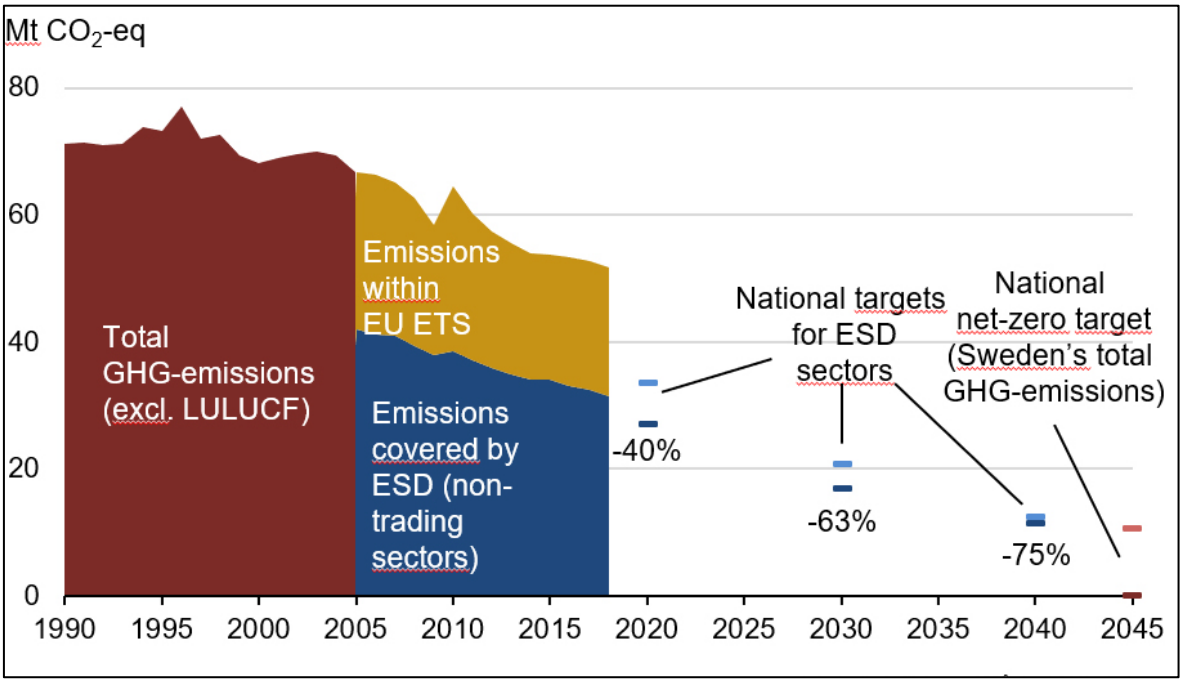
Climate Goals

1. **Sweden is to have reached net zero emissions of GHGs to the atmosphere by 2045 and should thereafter reach negative emissions.**
2. By 2030, emissions in Sweden in the sectors that will be covered by the EU ESR should be at least 63% lower than in 1990.
3. By 2040, emissions in Sweden in the sectors that will be covered by the EU ESR should be at least 75% lower than in 1990.
4. By 2030, emissions from domestic transport, excluding domestic aviation*, will be reduced by at least 70% compared with 2010.

*since the sector is included in the EU ETS scheme.

Source: Ministry of Environment and Energy, 2017: 2-5

Figure 9. *Planned emissions reductions*



Source: SEPA, 2019

These goals are accompanied by a system for planning and monitoring, where the government monitors emissions and develops action plans accordingly and presents this to the parliament (Prop. 2016/17:146: 39). A yearly climate report should be submitted to the parliament, and

each term of office an action plan is to be submitted in relation to an indicative emissions curve (Prop. 2016/17:146: 37, 39-40). The first action plan within the framework – Prop. 2019/20:65 *A Coherent Policy for the Climate: Climate Policy Action Plan* (CPAP[5]) – was submitted to the Parliament in December 2019. It seeks to integrate the emission targets into all sectors – construction; industry; electricity and heating; forestry and other land uses; agriculture; and mobile machinery – and proposes 132 concrete actions to be taken across the economy.

Before the adoption of the CPF, yearly emission developments were presented in the budgetary proposition divided by economic sector. Henceforth, however, a climate report is to constitute an appendix to the proposition (Prop. 2016/17:146: 39-40). In order to evaluate the progress of the Government, an independent and interdisciplinary Climate Political Council is instituted, which is to evaluate the consistency between the government's climate efforts and the climate goals, keeping in mind dimensions of social, economic and environmental sustainability (Prop. 2016/17:146: 42).

The last component of the CPF is the Climate Act, which enshrines in law the basic principles of the Framework's climate efforts (see Appendix IV). The Act took effect in 2018, and its five clauses declare that the Government is to pursue climate politics that prevent hazardous disturbances to the climate system; that protect ecosystems and future generations from harmful effects of climate change; aims to reduce the emissions of CO_2 and other GHGs, as well as to preserve and create ecological functions that counteract climate change and its adverse effects; builds on a scientific foundation and is based on relevant technical, social, economic and environmental considerations. Further, it establishes that the Government's climate policy must be based on the climate goals established by the Parliament and makes them legally binding. However, the Government is to establish other emission targets needed to achieve the long-term goal, and make sure the climate political work is compatible with budgetary goals (Ministry of the Environment and Energy, n.d.).

At this point, after having provided an overview over the Swedish food and climate contexts as well as the NFS and CPF, I now turn to my aims and research questions.

[5] My abbreviation.

3. Aim and Research Questions

Swedish agriculture is overwhelmingly industrial; it depends on imports of inputs such as fertilizers, pesticides and fuels, and relies on export markets to maintain its rationalized structure. Swedish food habits are similarly maintained by means of importing food products such as fruit, fish and meat. Given the current organization of the Swedish food sector and the many fundamental values of food, I firstly seek to investigate how it is politically conceptualized in the current era of climate crisis. Secondly, considering that the crisis is not only factual, but also politically recognized, I aim to scrutinize the way(s) in which the long-term plan for the organization of the Swedish food domain speaks to the political consensus on the need to reduce net emissions to zero. Lastly, I intend to provide a discussion on the potential need for a reconceptualization of food in the face of the ambitions to reach net-zero emissions.

Slavoj Žižek (1992: 34) importantly notes that prevailing ecological crisis does not only constitute a material threat to the survival of our species, it also "questions our most unquestionable presuppositions, the very horizon of our meaning, our everyday understanding of 'nature'". As such, processes of socio-ecological change that seek to counter it inevitably involve both physical and cognitive dimensions. Such change, however, is never neutral (Swyngedouw, 2007). Hence, policies dictating it should be subject to careful scrutiny, since the framing of political issues tend to dictate the political instruments applied to solve them (Swyngedouw, 2007: 37; Bacchi, 2009).

I seek to contribute to this debate, by answering the following research questions:

- How is food politically conceptualized in the Swedish National Food Strategy?
- In what ways is the National Food Strategy seen to be (in-)compatible with the Climate Policy Framework? Where does this (in-)compatibility stem from?
- How could this (in-)compatibility be seen to (not) call for a political reconceptualization of food in the face of the climate crisis? On what grounds?

In order to answer the first question, I examine the historically unique NFS by deploying a problem-questioning approach to policy analysis (Bacchi, 2009). Such an approach departs from an understanding of policies as *problematizations* in that they embody implicit formulations of the 'problems' that they set out to solve. A problem-*questioning* approach then,

seeks to make those 'problems' explicit and interrogate them. In order to identify the problem representation(s) latent in the NFS, I draw on the *What is The Problem Represented to Be?* (WPR) framework (Bacchi, 2009). As such, this first research question will serve to uncover the way in which food is politically conceptualized at the current historical juncture characterized by the climate crisis. I use 'conceptualization' as a broad theoretically neutral concept, to be filled with meaning throughout the process.

As for the second question, I draw on Qualitative Content Analysis (QCA) in putting the NFS and CPF as to identify (in-)compatibilities, alignments, silences and assumptions. My aim is to identify a 'food-climate nexus', where the NFS and CPF intersect and are 'compatible' and 'speak to each other', while also take notes of any 'incompatibilities' existing between the two. I then turn to my third research question, where I provide a discussion – drawing on the WPR approach, my analytical framework and the two previous research questions – on if there is reason for a political reconceptualization of food.

3.1 Delimitations

For my analysis, I will consider five documents, namely the two Government Bills that constitute the basis of the NFS and CPF respectively, as well as the Action Plans formulated according to respective Government Bill (for a more elaborated discussion on sampling, see 5.2.1). Due to the limited scope, I have made active decisions to exclude investigations leading up to the formulation of the two Bills, as well as evaluations, reports, investigations on both the Swedish and European political levels (e.g. Swedish Climate Policy Council, 2020; SOU 2020:4; European Commission, 2019; European Commission, n.d.) despite their potential relevance for the thesis. It is possible that the results would have looked different, had more material been considered.

Important to note is also that the Government Bills are structured in a way where each and every point proposed by the Government is followed by a summary of statements from consultation bodies in relation to the proposition in question, followed by a motivation by the Government on why the proposition is brought forward, considering the inputs from the bodies. I have only engaged directly with the Government's propositions and the motivations for those, while recognizing the input made by the consultation bodies.

Moreover, I wish to emphasize that when seeking to uncover the compatibilities and incompatibilities between the two policies, my aim is not to quantitatively interrogate the consistency between the actions prescribed by the government and their potential to reach climate neutrality within the set timeframe, relevant governance mechanisms considered. Instead, what I seek to juxtapose the two consensuses and discuss alignments, contradictions and silences, aided by my analytical framework introduced in the following chapter.

4. Analytical Framework

In this chapter, I outline my analytical framework, consisting of six elements. Below, these are presented one by one to then be summarized in a concluding summary, where I provide an explanation of how I conceive them as interconnected and how they together form a theoretical lens that will aid my analysis.

4.1 Socio-Ecological Metabolism

In conceptualizing the current socio-ecological regime, I apply a *metabolic* approach. Although originating in the field of biology, the concept of metabolism has proven to be of great use when analyzing social systems and the relationship between human society and nature. It concentrates on the material exchange between society and the environment and points to the interconnectedness and co-evolutionary character of socio-ecological relationships and constellations (Fischer-Kowalski, 1998).

A metabolic approach departs from the basic notion of human society as a sub-structure to the Earth system. As such, society is embedded within nature, on which it is dependent, and can therefore not be conceptualized independently of it. Societies depend on an uninterrupted throughput of energy and materials from its surrounding environment to reproduce and maintain their structures (Fisher-Kowalski & Haberl, 1993). Depending on a society's organization of activities such as extraction, production, consumption, waste management and

so on, its material exchange with the environment takes on different shapes and forms. Importantly, this is also true for the relation of one society with the rest of the world system, since the globalized market regime sees constant flows of money, people, resources, commodities and wastes between nation-states, around which societies tend to structure themselves (Hornborg, 2016).

Within the field of social metabolic studies, many efforts are made to measure flows of various kinds between states, as well as between societies and the environment (EJOLT, 2020). However, for this study, I will limit myself to the application of the metabolic perspective as a way of *conceptualizing* the happenings in the world system, rather than to quantify them.

4.2 Fossil Capitalism

Drawing on Malm (2016), I take the concept 'fossil capitalism' to signify today's fossil fueled capitalist system of production, which has evolved through a historical process where capitalist social relations have created a preference for oil, coal and gas over other energy sources (Malm, 2016). Fossil fuels enjoy the benefit of being accumulative and mobile; they can be burnt wherever, whenever, for whatever purpose, by whomever, with the only constraining factor being purchasing power to acquire the resource. Accumulation allows for exclusive ownership, and mobility for fuels to be moved to where prices on other factors of production are favorable. In being products of past photosynthesis, energy from these fuels can be harnessed independently of the volatile flows of wind and water, and of contemporary photosynthesis (ibid). Important, however, is that fossil fuels are depleted through consumption, and not useful in their natural form. Instead, they are combusted into higher entropy, both reducing the amount of low entropy in the global thermodynamic system and emitting CO_2 (Malm, 2016).

Due to the needlessness of having to adjust to the flows and fluctuations of energy above the crust of the earth, fossil fuels have created a feeling of (imaginary) independence from nature and its workings (Malm, 2016). As such, fossil energy enables the capitalist social organization to constitute itself as ontologically separate from nature. Energy is today virtually invisible; the visual impact of energy production is rather limited, since oil, coal and gas are locked into reserves below ground (Malm, 2016; Hornborg, 2017). Fossil fuels have allowed for an unprecedented speed of transport, contributing to an unprecedented compression of the

dimensions of space and time under industrial capitalism (Harvey, 1989). As such, fossil fuel combustion creates an illusion of modern human society being independent also from the dimensions of time and space (Malm, 2016; Huber, 2013).

4.3 The Metabolic Rift

The concept of the metabolic rift encapsulates the origins of the fossil-fuel dependent agriculture of today, and in more general terms the break with the reciprocally configured exchange between society and nature that constituted pre-industrial societies. Marx noted that industrial capitalist agriculture generated "an irreparable rift in the interdependent process of social metabolism, a metabolism prescribed by the laws of life itself" (Marx in Foster & Clark, 2018: 1). This stemmed from the observation that industrialization of agriculture brought about a rural-urban population transfer and export of agricultural produce from rural areas to distant urban markets, which generated a transfer of soil nutrients to cities, where they ended up as waste (Foster, Clark & York, 2010: 77). Thus, nutrients, human excrements and manure were no longer returned to the soils to secure fertility, creating a disturbance of the socio-ecological metabolism.

This capitalist contraction is by Marx seen to be 'robbing' the soil and the worker. Effectively, Marx (1976 in Clark & York, 2008: 18) notes:

> All progress in a capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil; all progress in increasing the fertility of the soil for a given time is a progress toward ruining the more long-lasting sources of that fertility . . . . Capitalist production, therefore, only develops the techniques and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth - the soil and the worker.

As such, industrial methods work to undermine long term productivity, despite short term increases in output, through undermining soil fertility – the means of reproduction (Foster, 1999). Nowadays, in the direct agricultural context, the metabolic rift is (temporarily) bridged by fertilizers, many of which are produced industrially and whose production process is highly energy intensive and fossil fuel dependent (Mancus, 2007; Clark & York, 2008).

4.4 Environmental (In-)Justice: Ecologically Unequal Exchange & Environmental Load Displacement

The concept of environmental justice (EJ) has many definitions and applications (Agyeman et al, 2016). It is seen to be both a social movement and a field of academic research, which concerns "the unequal distribution of social and environmental costs between different social groups according to distinctions of race/ethnicity, social class, gender, age, and location (Temper, Del Bene & Martinez-Alier, 2015). Here, I use EJ as an overarching concept, encompassing also climate, energy and food justice. From the wide array of concepts related to EJ two will be of special interest to this piece of research – ecologically unequal exchange (EUE) and environmental load displacement (ELD) – which are both concerned with the uneven effects of today's socio-ecological metabolic configuration (Hornborg, 2016).

Ecologically unequal exchange (EUE) posits that all commodities embody the energy, matter, land and labor time invested in their production processes. This is insufficiently captured in mainstream economic accounting, since monetary price tags obscure such embodied values. Money, which is a human artefact and invention, dictates market exchange in defiance of objective biophysical values and thermodynamics. The economy is viewed as a mere cultural construct, in contrast to objective physical values (Hornborg, 2016). Physical values are obscured by market prices, which allows for a net inflow of labor time, biophysical resources and land from the world-system's periphery to its core, predicated on global discrepancies in prices (Hornborg, 2016: 65). As such, monetary exchange – which institutes false reciprocity – enables some to accumulate resources at the expense of others, in a zero-sum world where energy and resources are finite (Hornborg, 2016). Technological development, from this perspective, are viewed as modes of 'space-time appropriation' (Hornborg, 2016: 63).

Ecologically unequal exchange allows for environmental load displacement (ELD) (Hornborg, 2016). This idea departs from the incompatibility between the capitalist economy and the second law of thermodynamics. Put concisely, the economy is similar to a living biological thermodynamic system in that it needs to import more useful energy (low entropy) than it dissipates, to keep its structure intact. According to the second law of thermodynamics, the amount of low entropy is constantly decreasing, spurred by for instance human combustion of fossil fuels where high entropy products of ancient photosynthesis are set fire to, and dissipated to the atmosphere as gas, that cannot be converted back to their original form unless they are,

once again, turned into parts of a biological structure through the process of photosynthesis (Schneider & Kay, 1994). As such,

> The amount of real wealth that an economy could create is limited by the amount of low-entropy energy and materials it could sustainably take from the external environment, and by the amount of effluents such as greenhouse gases that the environment could sustainably absorb" (Soddy in Martinez-Alier & Muradian, 2015: 7).

However, value in contemporary economic accounting does not correspond to the ecosystemic function of commodities, or whether they exhaust stocks of exergy and dissipates disorder to nature, or to other parts of the world system. This allows states to export high entropy (disorder) economic 'bads' – pollution and waste – to other parts of the world system (Hornborg, 2012: 55-57). However, interestingly, in the offset economy, the peripheries of the world system can also be used as entropy sinks (ibid).

4.5 Food Sovereignty

Since the 1990s, 'food sovereignty' has become a key concept in the struggle against the industrial food system, and for food justice. The origin and exact definition of the concept is much debated. However, the final declaration of the People's Food Sovereignty Forum 2009 defines the struggle for food sovereignty it as:

> Transforming the current food system to ensure that those who produce food have equitable access to, and control over, land, water, seeds, fisheries and agricultural biodiversity. All people have a right and responsibility to participate in deciding how food is produced and distributed. Governments must respect, protect and fulfill the right to food as the right to adequate, available, accessible, culturally acceptable and nutritious food (International Planning Committee, 2009, in Jarosz, 2014: 169)

Closely linked with food democracy, food sovereignty seeks to counter the dominant model where production is directed to the global market, food is viewed as a commodity, and the control of the productive resources is private (Rosset, 2003). Instead of global complex relations, it desires proximity, in physical, social, economic, political and cultural terms (Edelman, 2014: 9). It seeks to cultivate solidarity-based relationships between producers and

consumers and promote both social and ecological synergies. It sees lack of food as a result of global inequalities, access and flawed distribution mechanisms, rather than as a lack of supply, availability or productivity (Rosset, 2003). It works to deconstruct the global complex system of production, exchange and consumption to replace it with a local and sovereign system over which control remains in the locality. It breaks with the mainstream discourse of 'food security', which essentially signifies "adequacy in [food] supplies and nutritional content, with the food itself produced and delivered under any conditions, including far-off, chemical-intensive industrial agriculture" (Edelman, 2014: 4).

Food sovereignty, instead, "raises the issues of what food is produced, where, how and by whom" (Edelman et al, 2014: 16) It should be noted, and has by many, that it risks being reduced to "an empty, shifting signifier" (Trauger, 2017: 22). However, I find it useful in emphasizing the social relations of food, and in imagining alternatives to the current food regime.

4.6 Depoliticization and the Post-Political Condition

In the neoliberal capitalist socio-economic-ecological configuration, a theoretical imperative to distinguish 'politics' from 'the political' has emerged. To Swyngedouw (2014: 90), the former signifies the public management of policy – the power play between political actors where rules and practices are negotiated, formulated and implemented within a certain institutional context. Politics (or policymaking), thus, confines itself to the realm of the possible, to the framework of existing socio-ecological establishments (Swyngedouw, 2007: 24). As such, politics "give society some (instable) form and temporal coherence" (Swyngedouw, 2014: 90).

The domain of 'the political' in contrast, is a conflictive sphere of agonism, where "different imaginings of possible socio-ecological orders compete over symbolic and material institutionalization of these visions" (Swyngedouw, 2014: 90). 'The political' goes beyond politics, accommodating disputes over the fundamental organization of production, reproduction and wider metabolic configurations. Simply, as put by Mouffe (2005: 9) 'the political' is a constitutive of human societies, and 'politics' aim to create order in the face of its conflictuality.

However, there is a propensity of politics to have a limiting effect on 'the political' by instituting a set of shared values, together forming a collective imaginary (Wainwright & Mann, 2013: 204-205; Swyngedouw, 2014: 91; Mouffe, 2005). Aiming to reach a state of non-conflictive stability, this imaginary tends to naturalize or *depoliticize* certain features of the social world, while at the same time providing the frame within which 'solutions' to social, economic and ecological problems are to be formulated. Today, however, it is argued that this collective imaginary has reached an unprecedented scope and become close to global. This has contributed to the institution of a *post-political condition,* which "forecloses the possibility of real politics" in an era of socio-ecological crisis (Swyngedouw, 2007: 14). As Mouffe states (2005:1):

> [T]he 'free world' has triumphed over communism and, with the weakening of collective identities, a world 'without enemies' is now possible. […] Thanks to globalization and the universalization of liberal democracy, we can expect a cosmopolitan future bringing peace, prosperity and implementation of human rights worldwide.

According to Swyngdouw (2014: 91), under the post-political condition,

> the public management of things and people is hegemonically articulated around a neutralization of the need for economic growth – the unquestioned mobilization of market relations and forces as the only possible mode of accessing, transforming, and distributing (transformed) nature – and capitalism as the only reasonable and possible form of organization of socio-natural metabolism.

Not only is the ideological hegemony of liberalism a source of depoliticization – it is entrenched by liberalism's inherent features and functioning. The legitimacy and stability of the liberal political ideology is ensured through a compartmentalization of social life into isolated spheres, where 'the economy' is separate from 'politics' (Wainwright & Mann, 2013: 211). As such, "[d]espite the vast inequalities between dominators and the dominated that characterize 'the economy' […], all are posited as equal in 'formal freedom', the abstraction of individual meritocratic citizenship (Wainwright & Mann, 2013: 211-212).

As noted by Slavoj Žižek (1999b: 199, in Swyngedow 2007), "[A]uthentic politics…is the art of the impossible – it changes the very parameters of what is considered 'possible' in the existing constellation". Similarly, Mouffe (2005: 3) contends that

> "the belief in the possibility of a universal radical consensus has put democratic thinking on the wrong track. Instead of trying to design institutions which, through supposedly 'impartial'

> procedures, would reconcile all conflicting interests and values, the task for democratic theorists and politicians should be to envisage the creation of a vibrant 'agonistic' public sphere of contestation where different hegemonic political projects can be confronted".

Under the post-political condition, however, issues of sustainability and the socio-ecological crisis are retained within the possible, stable and non-conflictive. As such, as noted by Swyngedouw (2007), the issue of climate change tends to – in the domain of politics – to be recognized as a real threat. However, both those who consider a socio-ecological reconfiguration to be needed to solve the crisis, and those who do not consider it a threat at all, are given the same 'extremist' label, disabling any kind of productive discussion (Swyngedow, 2007). Inspired by Wendt Höjer (2002), Rönnblom (2012: 126) argues, "[t]o stress the dimension of conflict when deciding whether a question is politicized or not is a way of highlighting the element of power in the theoretical understanding of politics and thus create opportunities for change".

4.7 Summary

Swedish food production and consumption are influenced by – and influence – wider *socio-ecological metabolic flows* of resources and money between different parts of the world system. Similarly, different ways of organizing food production have built on different relations of exchange between society and nature. Industrialization has generated a novel metabolic exchange with nature, involving extraction and combustion of fossil fuels to compensate for the disruption of the natural cycles and regenerative mechanisms, resulting in a *metabolic rift.* This disruption and the imaginary space-time independence that characterizes the co-constitutive *fossil capitalism*, makes it both cognitively and materially complicated to transition from such organization of (food) production.

Were Sweden a closed system, such shift would shake the foundation of industrial agriculture and ask for alternative solutions to bridge the rift, alter the contemporary metabolic configuration, and make agriculture more dependent on factors such as space, time and natural cycles. However, Sweden is an open system. Considering that the very definition of 'net-zero emissions' allows for Sweden to trade emissions and compensate territorial emissions, and that emissions, land and labor embodied in commodities are ignored in mainstream economic

accounting, allows for maintained internal stability to be ensured through *EUE* and *ELD* and an intensified socio-ecological metabolism. In a zero-sum world, such solutions are not generalizable on the global level, which has serious implications for *environmental justice.* An alternative, however, would be an inward-looking development towards *food sovereignty*.

Finding ourselves in the midst of the *post-political condition*, I examine if, how and why (not) this squares with the political consensus to reach net-zero emissions, and bring in potentially omitted values and factors. This I do drawing on the methodological approach outlined in the following chapter.

5. Methodology

In this chapter, I outline my methodological approach including my philosophical stance and positionality, my empirical material, my methodological framework as well as limitations.

5.1 Positionality and Philosophical Stance

In this piece of research, I use realist social constructivism – a marriage between social constructivism and critical realism – as my philosophical point of departure (Elder-Vass, 2012). This is motivated by my focus on political conceptualizations, which I believe are separate from, but also exert an impact on, external material reality. Concerned with climate change and somewhat engaged in a historical materialist discussion, I consider a realist grounding to be necessary in order to establish the existence of an objective physical reality, although recognizing that understandings of it vary. That is to say, I confine myself predominantly to a materialist view on social justice, but also to one of cognitive justice, seeing them as interconnected. My focus is on materiality at the same time as I recognize that experiences of it are diverse, and thereby my approach integrate both critical and difference-centered elements (Moosa-Mitha, 2005).

My ideological convictions and multiple identities have clearly influenced my choice of research topic, my research questions, as well as the methods and theories drawn on to answer them (Brown & Strega, 2005; Lather, 2002: xvii). As a white, young, female researcher trained at Western universities, there are obvious limits to the perspective I can provide. I grew up and have spent most of my life in Sweden, which undoubtedly acted as an impetus to the decision to critically interrogate Swedish policy. However, spending time in foreign (academic) contexts has aided me with an (although limited) insight into outsider perspectives on Swedish and European politics and political agendas, which – I believe – likewise influenced the choice of topic. Naturally, so did also my heart beating for environmental justice and my interest in food systems.

Although equipped with general knowledge about the Swedish political context and system, I lack previous experience in analyzing policy. This has, naturally, has influenced the design and the results of the study. However, I have chosen to engage with two methods which are highly reflexive and rely on researcher integration. My interpretations are present throughout the work, which this is a choice based on my disbelief in the possibility of conducting research separate from ontological politics, subjectivity and power (Mol, 1999; Canagarajah, 1996, Santos, 2016; Jazeel & McFarlane, 2010). Further, I consider a human ecology lens to be of great value to discussions and analyses of intersections between human society and the earth system, of which the food system represents a prime example.

Drawing on critical theory, this piece of research has, partly emancipatory ambitions (Moosa-Mitha, 2005). It recognizes the potential of political interpretative prerogative (‘problematization’) to be used as a tool of dominance. Rather than providing any blueprint solution(s), I seek to initiate discussion. Aware of that the approach taken can be seen as normative, I want to emphasize that I by no means see a transition to a different agricultural system as an easy project. Neither do I underestimate the role of and need for stability-providing politics in human societies. However, I believe that there is value in challenging presumed truths and pose questions about what we value, and what societies we want to live in. Especially so since such ‘truths’ underpin the reproduction of global material structures, the present design of which allows some to live at the expense of others (Hornborg, 2016).

5.2 Qualitative Data Collection and Analysis

Informed by the theoretical framework, I perceive 'politics' as aiming to achieve stability in the face of the agonistic 'political', and policy as a reflection of the dominant cosmology, which as all cosmologies "tend to rationalize the shortcomings of the social order" (Swyngedouw, 2007; Hornborg, 2016: 3). As the socio-ecological crisis threatens to disrupt stability and cultural systems in place, I seek to examine how food is politically conceptualized, how this conceptualization finds ground in relation to the plans for drastic emissions reductions, and the potential need for a reconceptualization of food in the face of climate neutrality. As such, I take on an explorative approach in an effort to uncover underlying politico-discursive forces and neutralized "truths" latent in policy, I draw on qualitative methods for sampling, data collection and analysis (Bryman, 2012: 379-384; Brown & Strega, 2005).

5.2.1 Choice of Empirical Material

The documents to be analyzed have been sampled purposively, based on them constituting the foundations of the NFS and CPF (Bryman, 2012: 418). These are:

- Prop. 2016/17:104 *A Food Strategy for Sweden – More Jobs and Sustainable Growth Throughout the Country* (136 pages)
- *A Food Strategy for Sweden – More Jobs and Sustainable Growth Throughout the Country: The Government's Action Plan* (12 pages)
- *A Food Strategy for Sweden – More Jobs and Sustainable Growth Throughout the Country: The Government's Action Plan part 2* (10 pages)
- Prop. 2016/17:146 *A Climate Policy Framework for Sweden* (70 pages)
- Prop. 2019/20:65 *A Coherent Policy for the Climate: Climate Policy Action Plan* (197 pages)

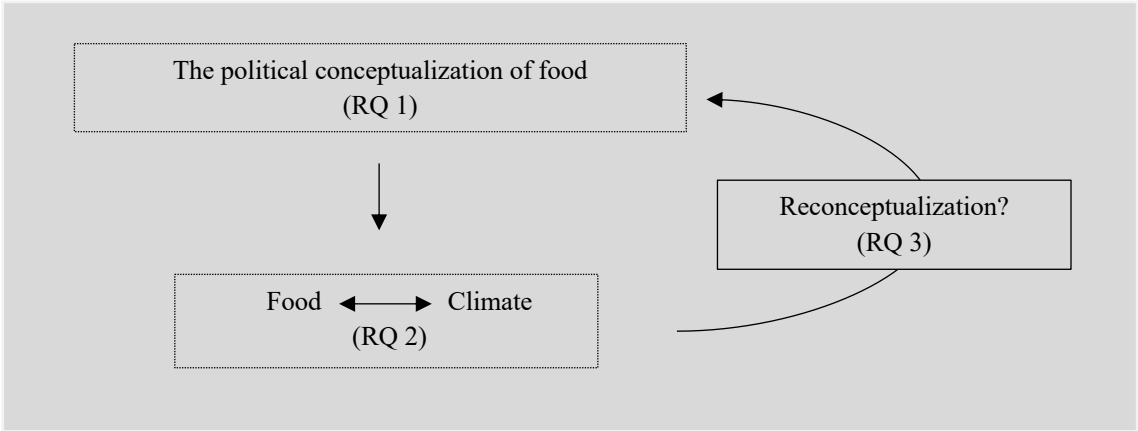
Prop. 2016/17:104 and Prop. 2016/17:146 constitute the basis of the CPF and NFS respectively, in being the Government Bill submitted to the Parliament, where they were adopted. I choose to also engage with the action plans related to both policies, in order to get a richer perspective

on what concrete actions the Government deems necessary in order to fulfil the aims outlined for the climate and food policy areas.

5.2.2 Methodological Framework: Problem-Questioning Policy Analysis and Qualitative Content Analysis

My methodological framework integrates two approaches, namely problem-questioning policy analysis and qualitative content analysis. As displayed in Figure 12, the former will be drawn on in answering the first and third research question, whereas the latter will provide the tools to answer the second research question. In essence, the research process is circular. Firstly, I seek to uncover the political conceptualization of food in Swedish politics. Thereafter, in line with the ideas of Swyngedouw (2007, 2014), Wendt-Höjer (2002), Mouffe (2005) and others, I juxtapose the Food Strategy and the Climate Policy Framework, interrogating the (in-)compatibilities between the two. Finally, based on this, I move on to a discussion on the potential need to reconceptualize food, in the face of the ambition to reach net-zero emissions, as to answer my third research question.

Figure 10. *The research process*



A problem-questioning policy analysis moves, as the name reveals, from the mainstream problem-*solving* approach to policy analysis to one that is centered around problem-*questioning.* Effectively, instead of focusing on the solutions brought forward, it directs the attention to the 'problem' that a certain policy is formulated in response to. For the sake of this

research, I draw on the *What is the problem represented to be?* (WPR) framework developed by Carol Bacchi (2009), which departs from the view that

> [t]here is an underlying assumption that policy is a good thing, that it fixes things up. Policy makers are the ones who do the fixing. The notion of 'fixing' carries with it an understanding that something needs to be 'fixed', that there is a problem (Bacchi, 2009: ix).

Bacchi (2009: xi) takes 'problem' to mean "the kind of change implied in a policy proposal", and views all policies as embodying a latent problem representation. Following this, the WPR approach sees policies as 'problematizations'. Consisting of six interrogative questions, the framework seeks "to make the 'problems' implicit in public policies *explicit*, and to scrutinize them closely" (Bacchi, 2009: x). Bacchi (2009: ix) departs from an understanding of policy as a historically and geographically situated cultural product, and "directs attention to the ways in which particular representations of 'problems' play a central role in how we are governed" (Bacchi, 2009: xi).

Figure 11. *The WPR framework*

***What's the problem represented to be?* (WPR)**

1. What's the 'problem' represented to be in a specific policy?
2. What presuppositions or assumptions underlie this representation of the 'problem'?
3. How has this representation of the 'problem' come about?
4. What is left unproblematic in this problem representation? Where are the silences? Can the 'problem' be thought about differently?
5. What effects are produced by this representation of the 'problem'?
6. How/where has this representation of the 'problem' been produced, disseminated and defended? How could it be questioned, disrupted and replaced?

Source: Bacchi, 2009: xii

Importantly, the WPR approach does not seek to examine the ways in which arguments are formulated but focuses on "the deep-seated ways of thinking that underpin political practices" (Bacchi, 2018). *Problematizing* 'problems' becomes a way of challenging dominant narratives, setting stable discourses in motion and regaining control over them (Deleuze in Bacchi, 2009: xvi). Here, I draw a theoretical parallel to the literature on depoliticization, since "WPR cultivates attention to the conditions under which things become 'evident'. In this way, it helps to identify the boundaries of acceptability for claims to the 'truth' – politicizing such claims"

(Bacchi, 2018: 11). On the intersection between WPR and the depoliticization literature, an important contribution is made by Rönnblom (2012: 133-134, 126), who – drawing on the WPR approach – advocates for feminist political analyses focused on problematizations rather than pre-identified independent variables as to move discussions from 'politics' to the 'the political'.

Keeping in mind my aim to uncover and interrogate the political conceptualization – or, politicization, if one wants – of food in Swedish politics, I find the WPR approach a useful one when approaching the NFS. Figure 12 shows how I to engage with the WPR framework more specifically. My first research question is inspired by its first question (WPR 1) whereas my third research question is based on its sixth question (WPR 6). However, when answering my last research question, I will engage also with the framework's second, third, fourth, and fifth question (WPR 2, 3, 4, 5).

In answering my second research question, which seeks to identify what I call the 'food-climate nexus' in Swedish politics by investigating the ways in which the Food Strategy and the Climate Policy Framework are seen to be (in-)compatible, I use qualitative content analysis (QCA). QCA is, as Bryman (2012: 557) notes, one of the most widely used approaches for analyzing documents qualitatively. As put by Hall and Steiner (2020: 4), "[q]ualitative content analysis is the close, comprehensive, and organized reading of a set of texts to identify themes, intent or patterns". I let myself be inspired by Altheide's (1987) approach to QCA[6], grounded in ethnography. It engages with concrete content, as well as it is concerned with the communication of meaning in a text, seeking to confirm theoretical relationships. Altheide (1987: 68) sees the research process as a reflexive interaction between the "investigator, concepts, data collection and analysis", with the aim to be "systematic and analytic, but not rigid".

However, importantly, QCA has seldom been used to analyze legal documents or policy texts directly, but instead often been drawn on in analyses of interviews, newspaper articles or technical reports relating to policy (Hall & Steiner, 2020: 3). However, Hall and Steiner (ibid) make an important contribution in deploying the method to "characterize policy trends and showcase the legal thought on insect pollinator conservation", by analyzing policy documents.

[6] Here, I use the abbreviation QCA for qualitative content analysis, which is not to be confused with Altheide's (1897) use of the same abbreviation for quantitative content analysis.

Since it lets me capture concrete features relating to implementation as well as softer elements, I consider QCA to be a useful approach when analyzing the intersections between the NFS and CPF.

Figure 12. *Methodological framework*

RQ	**WPR**	**QCA**
1. How is food politically conceptualized in the Swedish National Food Strategy?	What's the 'problem' represented to be in a specific policy? (1)	n/a
2. In what ways is the National Food Strategy seen to be (in-)compatible with the Climate Policy Framework? Where does this (in-)compatibility stem from?	n/a	Identifying the food-climate nexus
3. How could this (in-)compatibility be seen to (not) call for a political reconceptualization of food in the face of the climate crisis? On what grounds?	What presuppositions or assumptions underlie this representation of the 'problem'? (2) How has this problem representation come about? (3) What is left unproblematic? Where are the silences? (4) What effects do they have and for whom? (5) How could this representation of the 'problem' be questioned, disrupted and replaced? (6)	n/a

5.2.3 Coding

Before starting the coding process, all documents were read carefully in their entireties as to create an overview of scope and content. Thereafter, I started the analysis of Prop. 2016/17:104 and the two complementary action plans, in relation to the first research question, inspired by the WPR framework's first question. I applied a soft coding strategy using Nvivo, taking special note of sections implying 'a need for change' (Bacchi, 2009: xi). I often attached memos to pieces of texts as to be able to make connections in the later analysis.

Thereafter, while having the content of the NFS somewhat fresh in mind, I coded Prop. 2016/17:146 and Prop. 2019/20:65 in relation to the second research question. After breaking down the documents into several bigger sections, I assigned codes to pieces of text with my analytical framework in mind, while letting themes emerge from the material (Altheide, 1967: 68; Bryman, 2012: 557; Hall & Steiner, 2014). Thereafter, I returned to the material on the NFS, conducting the same procedure. The coding process was iterative, since I revisited codes as new material emerged, to modify labels and move pieces of text between different codes. At times, the same section was coded under several rubrics (Altheide, 1967: 69). I gathered all codes and bigger categories in a table to get an overview of my results (see example in Appendix V). Lastly, once the data had been summarized, the documents were re-read one last time as to ensure consistency.

5.3 Limitations

Just like all research, this thesis has a number of limitations. First of all, I analyze a big amount of material considering the scope of the thesis. Therefore, any result would have involved big simplifications. Furthermore, my approach can be criticized for being Eurocentric, in not truly considering the diversity of voices on the issue of food and what it represents. With regards to the methods used, I am aware of the fact that mixing two methods is associated with risks. Moreover, although the subjectivity – or normativity, if one wants – of the WPR approach works in its favor, it can also be a downside in that it runs a risk to become loose and arbitrary.

Based on the data collected using the methods presented here, I answer my research questions in the following chapter.

6. Findings and Discussion

As emphasized and elaborated in earlier chapters, for this research, my interest lies in uncovering how food is politically conceptualized at this certain point in history, at which the climate crisis is politically recognized, and ‘climate’ operates as a supra-sectoral policy domain.

Departing from this, my first research question relates to the political conceptualization of food in the NFS, keeping in mind the broader recognition of climate (change) as a political issue, without interrogating the interrelation between the two policy areas. Thereafter, however, in order to answer the second research question, I put the most recent product of the recognition of climate as a political issue – the CPF – in direct conversation with the NFS as to explore (in-)compatibilities between the two. The answer to the third research question provides a discussion on whether the political conceptualization of food of the NFS could or should be reconsidered, based on the two former research questions.

6.1 Focusing on 'the Problem': The Political Conceptualization of Food

Adhering to Bacchi's (2009: xi) definition of a 'problem' as "the kind of change implied in a policy proposal", the NFS can be seen to be formulated in response to two broad trends. These are:

1) The present and future unmet demand for sustainable food products globally, in the face of a growing world population, rising affluence levels and climate change.
2) The fact that Swedish food production is on the decline, since Swedish produce faces difficulties competing on international as well as national markets, which results in decreasing value shares nationally and internationally; a negative export-import ratio and a larger share of imported products than nationally produced on the national market; implications for self-sufficiency; and provision of fewer benefits to society from food production (Prop. 2016/17:104: 16-17).

The rationale is that the Swedish food supply chain – defined as encompassing primary production, food industries, food retail, restaurant industries, food tourism, and food consumption – can counter both trends if its potential is fully realized (Prop. 2016/17:104: 1, 6, 17, 39). The NFS, then, provides a roadmap for how to better seize this potential and reap the benefits from a more optimized food chain. Its overarching goal hints to what is considered a food chain the potential of which is better realized. As stated earlier, by 2030, the Government aims to have achieved

> a competitive food supply chain that increases overall food production while achieving the relevant national environmental objectives, aiming to generate growth and employment and contribute to sustainable development throughout the country. The increase in production – of both conventional and organic food – should correspond to consumer demands. An increase in production of food could contribute to a higher level of self-sufficiency. Vulnerability in the food supply chain will be reduced (Prop. 2016/17:104: 20).

This objective is worth unpacking, especially since many of its components are interlinked. As far as the Government is concerned, food should – in the context of climate change – be produced where the environmental impact of production is the smallest. Since Swedish food production is environmentally and climate friendly by global comparison, Sweden should *increase its food production* for national as well as foreign markets and substitute production with larger footprints taking place elsewhere (Prop. 2016/17:104: 16-18).

In the face of climate change, the need for a transition to a 'green economy' is recognized, and agriculture and the 'green sectors' are seen to play a crucial role in this transition (Prop. 2016/17:104: 17). Effectively, a strong Swedish food sector is seen as a force for sustainable development both nationally and internationally (Prop. 2016/17:104: 16). Likewise, the government emphasizes that an increased domestic food production, jointly with other factors, increases the degree of self-sufficiency (Prop. 2016/17:104: 15).

Following this, the goal for *increased competitiveness* in the food chain is motivated by the fact that a more competitive food chain would allow for increased production and generate more benefits to society. Swedish products have a difficult time asserting themselves on global and national markets alike, which is manifesting itself as a growing share of international food products on the Swedish market. As far as the Government is concerned, this trend has to be turned around in order to enable the Swedish food sector to contribute towards the 'green transition' (Prop. 2016/17:104: 17-18). The increased global demand for sustainably produced food and agricultural products constitutes an opportunity for the Swedish food supply chain to increase its competitiveness by tapping into this demand. The NFS states, "[t]he interest for wholesome, safe and sustainably produced food products constitute an important hand growing part of the market that […] favors Swedish export of food products" (Prop. 2016/17:104: 17).

Strengthened competitiveness is also seen to make Swedish products more attractive and incentivize Swedish consumers to purchase domestic products. Given that the development towards increased production and competitiveness is to be *consumer-driven*, the government

considers it important to further enable and strengthen the capacity of consumers to make informed choices when it comes to food, in relation to health, sustainability, origin and ethics (Prop. 2016/17:104: 17).

However, in order to boost competitiveness and enable an increase in production for both Swedish and international markets, the *productivity in the Swedish food sector should increase* at pace with that of other countries (Prop. 2016/17:104: 16). Here, business development and structural transformation are emphasized as important components, since the costs for "some inputs and labor are higher [in Sweden] than in comparable countries" (Prop. 2016/17:104: 18). The current development, if continued, would "result in that the production is reduced by 35 percent by 2030 if the productivity increase is not sped up, or if it is not possible to charge higher prices for Swedish agriculture than the expected world market prices" (Prop. 2016/17:104: 16). Moreover, this trend needs to be turned around since – the NFS states – if the Swedish food production shrinks, the societal benefits it would not be realized to the extent that society demands (Prop. 2016/17:104: 18). Such benefits include, growth, employment, sustainable development, as well as positive developments when it comes to health, environment and climate (Prop. 2016/17:104: 1).

This ties into the Government's *environmental agenda*, since increases in productivity and resource efficiency are considered important factors in making food production more sustainable. The Government contends that food production actively and directly contributes to the achievement of some Environmental Quality Objectives, for instance *A rich agricultural landscape* (Prop. 2016/17:104: 87, see Appendix II). However, negative environmental effects of food production are recognized, and so is also the need for them to be minimized (ibid).

Although not given much weight, it is my interpretation that all of these components are seen to together contribute towards *reducing the vulnerability* of the food chain. As earlier mentioned, when it comes to concrete measures, the NFS puts extra weight on three Strategic Areas, namely: *Rules and Regulations*, *Consumers and Markets* and *Knowledge and Innovation* (see Figure 13). The actions outlined in the two action plans resemble these three areas well, and include for instance stimulating advisory services related to food and agriculture to make relevant authorities more accessible to the actors of the food chain; review and adapt regulations to the objectives of the NFS; strengthen knowledge and capacities in the food chain; improve

coordination of actors; and stimulate production (Ministry of Enterprise and Innovation, 2017; 2019).

Figure 13. *The NFS sub-goals*

Source: Ministry of Enterprise and Innovation, 2017: 10

In sum, it can be said of the conceptualization of food that it is – on the global level – one of scarcity, where more sustainable food needs to be produced, in the face of the intersection of climate change, population growth and increasing affluence. On the national level, however, the Swedish food sector is not seen to harness its untapped potential. However, by stimulating increased production, competitiveness and productivity, Sweden can tap into the global demand for sustainable food and thereby both stimulate global and national sustainable development, as well as the national economy.

6.2 Identifying the Political Food-Climate Nexus: Juxtaposing the National Food Strategy and the Climate Policy Framework

The previous section identified how the NFS conceptualizes food. This section, however, puts NFS in direct conversation with the CPF, and presents my perceived (in-)consistencies between the two. Important to note is that the Government Bills that constitute the bases of the NFS and

CPF respectively (namely Prop. 2016/17:104 and Prop. 2016/17:146) were prepared and adopted with such closeness in time that they do not refer to one another. The CPAP, however, was submitted to the Parliament in 2019, and does make direct references to the Food Strategy.

By and large, the NFS and CPF are unsurprisingly compatible. The intersections between the two are many and establishing a 'food-climate nexus' is a rather straightforward endeavor. The objectives for the NFS and the Climate Goals are not seen as contradicting the logics of one another but are rather seen as complementary. I conceive the alignment to be visible both in the way the issues are outlined as well as in the actions proposed.

6.2.1 Outlining the Issues: Food and Climate as Interconnected

When contextualizing the NFS and the CPF, the Government zooms out to situate Sweden within the global. Both the issue of food and that of climate are introduced as being shared concerns on a global scale. One striking similarity between the NFS and the CPF is their way of setting the scene with regards to Sweden's role in the global arena in relation to food and climate: Sweden is presented as a forerunner, and therefore as having responsibility with regards the two global challenges of 1) making sure the global demand for food is satisfied, and 2) to reduce global temperatures increases in accordance with the Paris Agreement. When outlining the objective of the CPF, the Government states,

> Sweden should be a leading country in the global effort to realize the Paris Agreement's ambitious targets and take responsibility for our historical emissions. Sweden should continue to be an international role model through its national climate commitments, and through contributing to the financing of emissions reductions and adaptation measures in developing countries. Sweden should show that it is possible to combine the climate transition with welfare and high competitiveness (Prop. 2016/17:146: 23-24).

In a similar manner, the Government defines its role with regards to food. Although recognizing that food production impacts the environment negatively, for instance in terms of climate change and fertilizer leakage, the government states:

> Swedish food production is from an international perspective […] environmentally and climate friendly and has high standards when it comes to animal protection and animal health. Climate

> change will make food production more difficult in some parts of the world. Therefore, the Government considers it important to seize the opportunities to produce food where the conditions are favorable and thereby reduce the climate impact of production. (Prop. 2016/17:104: 17).

Here, as mentioned earlier, the rationale is that the challenge is not to reduce Swedish production in the face of climate change. Rather, production should increase so that it contributes to meeting the global demand for climate-friendly food, since "[i]n this way, an increased food production in Sweden can work together with actions to reduce the global emissions of greenhouse gases" (Prop. 2016/17:104: 12). However, the relationship is also assumed to be true in the opposite direction:

> The interest for healthy, safe and sustainably produced food constitutes an important and growing part of the market which also favors Swedish export of food. Export of Swedish food products also contributes to the national economy at large. It is the Government's contention that Sweden's well-being is dependent on our export (Prop. 2016/17:104: 17).

Following this, tapping into an increased global demand for sustainable food is seen as a strategy to reverse the trends of decreasing production and lagging competitiveness. As such, the food chain is seen to play important roles both in terms of sustainability, and for the national economy. Here, interests are converging, since the Swedish environmental and climate performance translates well into an economic comparative advantage in terms of sustainability.

From a national perspective, however, the Government states the following, with reference to the Generational Goal of the Environmental Quality Objectives:

> Year 2030, the Swedish production resources are used effectively and sustainably. The point of departure for the Swedish Environment Objectives System and the Generational Goal is to hand over a society to the following generation, in which the big environmental problems are solved without environmental problems being exported to other parts of the world. The production of food has a meaningful role in Sweden's and the rest of the world's transition to a sustainable society and pursued with high ambitions with regards to environment and climate, health, animal welfare, and continuously low use of antibiotics, quality and food safety (Prop. 2016/17:104: 18)

In sum, through increasing its domestic food production, Sweden is to contribute to emissions reductions globally. At the same time, climate-friendliness boosts the competitiveness of Swedish produce. As such, the aims of the NFS and CPF are seen to complement each other.

Furthermore, the food sector is seen to work towards reduced emissions globally and stimulate national growth and sustainable development. The measures for reducing emissions in the sectors included in the food chain do not stand in opposition or threaten the strengthening of these values. This is elaborated further in the following section.

6.2.2 Actions: Alignment according to Available Measures

As earlier mentioned, the CPAP outlines 132 measures to be taken towards reaching net-zero emissions. These are grouped into bigger categories and sub-categories (see Fig. 14). The CPAP presents a number of 'Preconditions for Transition', before moving on to the concrete actions proposed. Such preconditions include a growing bioeconomy, a more circular economy, and increased resource efficiency. Moreover, conditions for increased electrification – it states – need to be in place. Additionally, inclusivity of the transition and continued availability of societal functions and activities to citizens must be ensured, even as emissions are reduced. Further, innovation policy must favor climate-smart solutions, and a strengthened investment environment and strong financial markets should enable the transition (Prop: 2019/20:65: 43-48).

In the document, the specific actions are embedded in flowing text, contextualized and sometimes put in relation to one another. Many of the actions are presented vaguely, with no references to time frames or more detailed plans for exactly *how* emissions are to be reduced.

Figure 14. *Measures presented in the CPAP (categories and sub-categories)*

Category	**Sub-categories**
Intersectoral Measures	Integration of 'climate' in all relevant political areas
	GHG emissions pricing
	Financial markets
	EU ETS
	Consumption-based emissions
	Public procurement
	Research and innovation
	Local and regional climate efforts
Sectoral Measures	Building and construction

	Industry
	Electricity, heating and waste
	Forestry and other land use
	Agriculture
	Transport
Flexibility Mechanisms	-
European and International Climate Efforts	EU
	Regional
	Global compliance with the Paris Agreement
	Financing international climate projects
	Climate and trade

Keeping in mind the definition of the food chain used in the NFS, as well as the actions outlined in its two Action Plans, none of the Intersectoral Measures proposed (Prop. 2019:20/65: 48-69) stand in conflict with the overarching goal of the NFS, nor its sub-goals or imply any direct changes to the operation of the food sector. Despite Swedish food imports being big and overseas emissions resulting from Swedish food consumption being high, the Government's proposed action on Consumption-based Emissions – tasking the EOPB with investigating the issue further and introducing a so-called '*hyber*[7] deduction' to encourage increased reparation and reuse of products – will, as of now, not have any greater impact on those emissions and ask for any restructurings (Prop. 2019/20:65: 61-63). Neither will the Local and Regional Climate Efforts imply any immediate changes to food production, since they mostly consist in such as strengthening the mandates of municipalities and regions to reduce their emissions and appoint inquiries into infrastructure planning (Prop. 2019/20:65: 69-77).

The Sectoral Measures proposed (Prop. 2016/20:65: 77-159), however, are seen to potentially imply some changes to food production although not challenging its fundamental structure. For reference, my coding of the Sectoral Measures is presented in Appendix V and my codes can be found in Fig. 15. My codes can be seen to somewhat resemble the earlier outlined 'preconditions for transition'. However, many actions are 'immaterial' (such as those falling

[7] '*Hyber*' is a merge of the three Swedish words *hyra* (rent), *begagnat* (second hand) and *reparation* (reparation).

under the code *Inquiry Appointed, Economic Incentivization,* and *Declarations and/or Registers*) which makes it difficult to estimate what material effects they might have on the operation of the food chain when introduced or operationalized. They are often, however, related to other types of action.

Figure 15. *Codes and explanations*

Code	**Examples**
Declarations and/or Registers	Environmental assessments, labelling, climate declarations
Economic Incentivization	Fiscal measures, deductions, premiums, subsidies, etc.
Bio-solutions	Biofuels, increased use of bio-based materials,
Circularity and Recycling	Carpools, recycling, life-cycle analyses
Regulation	Review, modification, implementation of regulations
Innovation and Technology	Stimulation of innovation, facilitating introduction of new technology on the market
Electrification	Electric cars, charging infrastructure
Inquiry Appointed	Development of a strategy, inquiry into actions to be taken
(Bio-)physical Interventions	Direct biophysical alterations of landscape
Other	Used when none of the other codes apply

Several broad-based actions are taken, such as the development of bioeconomy strategy, a national strategy for circular economy and a national strategy for electrification (*Bio-based Solutions*, *Circularity and Recycling* and *Electrification*), which are visible in almost all sectors. Looking to 'direct' impacts for food the food chain, fossil fuels in working machines will be phased out to be substituted by biofuel and electric vehicles (Prop. 2019/20:65: 105-106). Mandatory climate declarations might affect buildings used in food production and recycling of building material will become easier (Prop. 2019/20:65: 78-81). In industry, rules for environmental impact assessments might be changed, applying for funding within the EU will be facilitated, initiatives with the private sector for carbon sequestration of past emissions will be undertaken (Prop. 2019/20:65: 81-90). Few of what I call (*Bio-)physical Interventions* are taken. In the land use sector, however, actions are taken to restore peatlands that are taken out of production, to sequester carbon (Prop. 2019/20:65: 100-101).

In agriculture, three actions are taken, namely a continued effort to minimize CH_4 leakages from fertilizer management, the development of a national plan for the implementation of the CAPs two pillars, as well as an inquiry into fossil independent agriculture (Prop. 2019:20/65: 101-104). Importantly, the CPAP states that Sweden will not reach zero emissions territorially with the current organization of the agricultural sector. Instead, it will draw on flexibility mechanisms to fulfil the objective of the NFS, since "increased domestic food production is a prioritized question for the Government" (Prop. 2019:20/65: 102).

However, the attainment of net-zero emissions in the different sectors are to take place within the EU governance frameworks. To reduce its emissions in the latter, as presented in earlier chapters, Sweden can draw on compensatory mechanisms such as LULUCF measures, CCS and bio-CCS technologies, investments in climate projects abroad (Prop. 2019/20:65: 160-166). The Government notes that emissions of methane and N_2O emissions will remain post-2045 (Prop: 2019:20/65: 102). To the problem of CO_2 emissions from fuels and chemical fertilizers, solutions are seen to exist, but are not further elaborated. With regards to this, the CPAP makes direct reference to the NFS:

> The Climate Policy Framework does, in accordance with the objectives of A Food Strategy for Sweden (prop. 2016/17:104) […], allow for Sweden to be able to have a competitive and growing agricultural production of crops and livestock and still reach the climate goals, jointly with the overarching environmental goal and other related societal goals. A transition from a fossil dependence to a fossil independence is decisive to reach the climate goal. An increased Swedish food production could contribute to positive effects on jobs and employment, especially in rural areas, and reduced vulnerability. Moreover, it has potential to reduce the total global emissions of greenhouse gases from food production. The competitiveness should be strengthened, which creates preconditions for an increased and climate smart agriculture (Prop. 2019:20/65: 103-104).

The NFS aims, as discussed, to increase Swedish export of food products. This responds well to the Government's actions in relation to trade, which sees "[t]rade as an important tool for sustainable development" and states that "Sweden should promote trade that contributes towards an effective use of global resources" (Prop. 2019:20/65: 182). It further states that Sweden will work for a revocation of trade restrictions in the EU trade agreements in general, and for "climate-friendly" commodities in particular (Prop. 2019:20/65: 182).

Throughout the CPAP, references to cost-efficiency are made. As stated in the Climate Law, "budgetary and climate goals should be harmonized", and the Government can be seen to propose solutions that are perceived to benefit climate, food and market simultaneously. Economic incentivization, regulatory change and more information should stimulate actors and consumers in order to spark change. Actions are taken vis-a-vis market mechanisms, through which change will be induced and Sweden will, through the same market, export its sustainable produce.

None of the measures outlined in the CPAP contradict the increased competitiveness, productivity and output that the NFS seeks to attain. Rather than constituting an 'incompatibility', the need to draw on compensatory measures in agriculture is in line with existing governance frames and available mechanisms. In short, considering national emissions, the definition of the food chain used and the ability to draw on complementary measures, the Strategy and Framework are compatible, and no large-scale reforms of the food chain are seen to be required in order to reach net-zero emissions by 2045.

6.3 A Call for Repoliticization of Food in the Face of Net-Zero Emissions

Up to here, I have established that in the current era characterized by the climate crisis food is politically conceptualized in terms of a sector that, globally, need to increase its production due to population growth and climate change. Domestically, however – if optimized – it can contribute to sustainability in Sweden and abroad, at the same time as it brings growth and societal benefits. As demonstrated in the previous section, the NFS and the CPF show internal consistency, in the sense that they do not contradict one another in terms of the approaches taken, objectives established, or measures proposed. This, in effect, means that within the Government's plan to become net-zero emitters by 2045, there is seen to be room to attain the goals set for the food sector. However, interrogating this consistency drawing on my earlier presented theoretical framework, I argue that this view builds on a number of presuppositions, assumptions and depoliticized elements, which have implications for justice. This, I contend,

makes the case for a reconceptualization or, rather, a *repoliticization* of food in the face of net-zero emissions, which accounts for these omitted elements.

The following discussion draws on the third phase of the methodological framework, and the WPR questions contained therein, namely: What presuppositions and/or assumptions underlie this representation of the problem? What is left unproblematic? What effects does this have and for whom? Essentially, my aim is to "set stable discourses in motion" (Deleuze in Bacchi, 2009: xvi), interrogate established consensuses in an effort to gain control over political problem formulations and accordingly prescribed solutions.

6.3.1 The Post-Politics of Food (and Climate)

The current structure of the industrial food system is, as discussed in the very beginning of this thesis, a product of fossil capitalism. The global circulation of food commodities is made possible by the space-time independence brought about by agrochemical stimulation, mechanization, transport and other dimensions of the global food regime. Although Sweden has introduced an ambitious plan to reduce its net-emissions to zero, it seems that no large-scale restructurings are needed in order to, not only keep the domestic production of food constant, but to *increase* food production. Although some effort is made to transform some aspects of food production, substitute energy sources, regulate and document, no action is taken to alter its fundamental metabolic configuration. This lack of 'conflictivity' and absence of spelled-out compromise, I argue, finds ground in the post-political condition. I realize that the stability of the identified 'food-climate nexus' finds ground also in the depoliticization of climate, in that it commodifies the atmosphere, sees the responsibility for solving of the issue as global, while disconnected from socio-ecological metabolic configurations (Swyngedow, 2007). However, being slightly outside the scope for the present work, my discussion is focused on the issue of food *in relation* to climate.

Looking to the 'problem of food', the contextualization of the issues as well as the actions prescribed are articulated within the market episteme, and all measures proposed are confined to the "realm of the possible", which is unsurprising considering their articulation within parliamentary politics (Swyngedouw, 2007: 24). Interestingly – put harshly – there seems to be a belief in that reach zero-emissions can be reached, without changing the social relations

that bring the emissions about in the first place, and without losing the time-space independence and certain way of life that fossil fuels have instituted (Malm, 2016; Huber, 2013).

Further, the crucial role to be played by technology and biofuels in a Swedish transition is seen to be ideologically neutral but mutually benefitting the social, economic and ecological values, positively contributing towards reduced emissions, well-being and economic growth (Swyngedouw, 2007). To the contrary, I perceive the solutions proposed to be firmly embedded within a certain ideological frame – call it *cosmology* (Hornborg, 2016) or *Zeitgeist* (Swyngedouw, 2011) – which builds on certain depoliticized presumptions. Therefore, in the following sections, I will – drawing on my analytical framework – bring such silenced factors to the fore, pointing to the hidden dimensions of the Swedish harmonized food-climate nexus.

6.3.2 'Industriality' as Natural and Neutral

> …the techno-managerial eco-consensus maintains, we have to change radically, but within the contours of the existing state of the situation […] so that nothing really needs to change! (Swyngedouw, 2013: 4)

When speaking of the Swedish agro-food sector, the NFS does not see beyond its industrial nature, but considers it as a 'green sector'. It accepts all its features but seeks to combat the emissions it produces. As such, the structure of the sector is not seen to be altered considerably by the transition to net-zero emissions, seen to the measures proposed. Mechanization will be sustained through powering working machines with biofuels and electricity and no physical reorganization of production is suggested (Prop. 2019/20:65: 106). Not much is said about mineral fertilizer use, although some synergies are found for instance in the proposed joint production of biogas and organic fertilizer (Prop. 2019/20:65: 87, 106). The Government recognizes that emissions of N_2O and methane will remain after 2045, but states that "when it comes to the use of […] mineral fertilizers in the sector, solutions exist", without specifying exactly what those would entail (Prop. 209/20:65: 102).

As such, looking to reduce emissions related with food production, the Government directs the attention to the energy sources drawn on, instead of the socio-spatial organization of the food sector. Monocultural specialization– requiring both mechanization and agrochemicals for its

sustenance – is, for instance, not seen as part of the equation. Monocultures are clear examples of the physical engravement of the production-for-the-market logic, since production of big quantities of the same crop on a national level finds no logical ground unless they are traded on an international market, in exchange for money and other commodities. And, as familiar, the Government considers exchange in food products, export wise, to be crucial for Sweden's well-being (Prop. 2016/17:104: 17). Furthermore, naturally, by using a definition of the food chain that excludes transport as part of the equation, the NFS blacks out a large share of related emissions.

In "only" concentrating on the emissions and ignoring the social relations and metabolic flows related to food, the Government does not – as far as my analysis has shown – project any altering of the time-space independence of food induced by the very nature of fossil fuels, in the form of supermarketization, cross-seasonal availability and a diverse food supply available to Swedish consumers. Neither does it address the issue of the metabolic rift brought about by industrial practices, nor does it discuss the (dis-)continuation of chemical fertilizer imports to temporarily avoid the crisis of fertility that a withdrawal of fossil fuels would, likely, entail (Schneider & McMichael, 2010; Foster, 1999). However, it remains to be seen what the fruits of the investigation on fossil independent agriculture will be.

In addition, importantly – despite the loosely formulated ambition to combat consumption-based emissions abroad –, advocating for free movement of commodities makes Sweden be able to, through trade, displace emissions by importing industrially produced products from elsewhere, which is an expression of ELD. A similar remark can be made when it comes to export since Sweden – by increasing productivity and 'sustainability' – aims to increase its competitiveness and thereby also the attractiveness of Swedish produce on the global market. The food chain is constituted by a flow of resources, and this flow is today powered by fossil fuels. The global market is its current design sustained by time-space compression enabled by fossil energy (Harvey, 1989). However, the Government presupposes the continued existence of the current level of mobility and aims to draw on it in its transition.

6.3.3 Economic and Biophysical Logics as Harmonized

Fundamental to the NFS is its definition of sustainability, which includes the three dimensions

of social, economic and ecological sustainability. With regards to ecological sustainability, the Government departs from the Generational Goal and the Environmental Quality Objectives (Prop. 2016/17:04: 9). Such three-parted sustainability definitions, as has been noted by a myriad of scholars, are inherently contradictory, due to the intrinsic incommensurability between economic and ecological values, and the fundamental clash between the economy and the second law of thermodynamics (Hornborg, 2016; Martinez-Alier & Muradian, 2015). 'Sustainable development', as such, becomes an oxymoron (Latouche, 2003).

Fundamental to the conceptualization of food found in the NFS is the romantic relationship between competitiveness, productivity and sustainability. Hitherto, I have demonstrated how Government action in the food domain– rather than directly intervening in the biophysical world – takes the form of market stimulation with the aim to achieve all three dimensions.

It stands clear from both policies that the Swedish government seeks to use the perceived Swedish 'lead' when it comes to sustainability as a comparative advantage in the global market arena. This, it is believed, will contribute to increased sustainability globally. This goes hand in hand with economic interests, and it is evident that the Government sees economic growth and sustainability as going hand in hand. At its very basis it seems to be boiling down to a question of productivity, where increased productivity in food production increases sustainability, competitiveness and economic growth. The NFS (Prop. 2016/17:04: 9), productivity is defined as

> the relation between the output volume and the resources consumed in the production process. Increased productivity means, for example, that fewer resources are used to produce the same amount of output, or that the production increases under unchanged resource consumption. When the productivity increases, it contributes to reduced resource consumption per produced unit as well as to business profitability.

However, seemingly, this definition ignores dimensions of time and scale and is insensitive to qualitative factors. Were future soil fertility (and the increased need for inputs resulting therefrom) and biodiversity taken into account as "resources consumed in the production process", the actions taken in the aim of 'productivity increase' would have looked radically different. Similarly, drastically reduced soil nutrient levels following industrial methods causes drastic nutrient losses in the food produced, despite an increase in output. Moreover, according to this definition and the Government's proposed measures to reduce emissions, technology

constitutes a key to preserve productivity in the face of emissions reductions (e.g. Prop. 2016/17:104: 11; Prop. 2019/20:65: 103). Thus, ignoring technology as a way of displacing environmental loads onto other parts of the world system, it is regarded an instrument by the use of which such loads cease to exist (Hornborg, 2016). Moreover, competitiveness is seen to work in favor of sustainability in that it prevents carbon leakage, where businesses operating on Swedish territory relocate and emissions move abroad (Prop. 2019/20:65: 103).

6.3.4 Non-Generalizable Solutions: Biofuels, Technology and Electrification

Picking up where the last section left off, I wish to interrogate the three prime strategies for emission reduction that the government proposes throughout its sectoral actions. As has been seen, instead of targeting the socio-ecological configuration at source of the emissions, action is directed to the emissions themselves. As such, the CO_2 becomes the antagonist – what needs to be defeated – in the fight for sustainability. With the socio-spatial organization left intact, faith is put in biofuels, technology and electrification in the combat against the emissions. Such solutions, it should be recognized, cannot be universalized across the globe as part of a hypothetical global transition towards fossil independence and zero-emissions. This, in my view, brings Sweden's self-image as a "forerunner" into question since, in a zero-sum world,

> [t]he affluence of high-tech modernity cannot possibly be universalized – become an asset of the species – because it is predicated on a global division of labour that is geared precisely to abysmal price and wage differences between populations. The density of distribution of technologies that are ultimately dependent on fossil fuels by and large coincides with that of purchasing power (Malm & Hornborg, 2014: 64).

The mechanization in agriculture will, for instance, be upheld through a substitution of fossil fuels with biofuels, and the domestic transport system (if taken into account, despite the NFS definition) will be electrified. It is not taken into account where these fuels would be grown – other than that the domestic production will increase. Likewise, the electrification will require new technology, which is, as demonstrated by Hornborg (2016), a product of an economy characterized by power asymmetries and EUE.

In terms of biofuels, Sweden already has a domestic production, which is in need of technological development to meet future challenges (Prop. 2019/20:65: 81). However, most of the fuels produced domestically are exported, whereas the dominant share of biofuels used in Sweden are imported (Prop. 2019/20:65: 85). Considering this, the government seeks to favor domestic consumption of Swedish fuels, but also increase production. However,

> …the suggestion that we can replace the use of energy representing millions of years of sunlight with that of current solar radiation does not recognize the crucial significance of the vast time-spans required to concentrate the energy in fossil fuels (Hornborg, 2017: 3).

Biofuels represent products of contemporary photosynthesis, and as noted by Hornborg (2017: 3), there is "simply not enough ecologically productive space on Earth to replace a significant share of the current use of fossil energy with biofuels, even if we do not reckon with alternative uses of land for the production of food and materials". Further is the return on the energy invested in producing the fuels much lower than that of fossil fuels, and the industrial infrastructure used for the combustion of fossil fuels will not be harnessing bioenergy as efficiently (Hornborg, 2017). None of these limits are recognized by the Government, or are seen to be calling for metabolic reconfigurations. Biofuels are unable to uphold the 'independence' from nature that fossil fuels have entrenched, but of the shares of the Swedish TPES constituted by fossil energy to be substituted by renewable sources would, unavoidably, require vast land areas devoted to energy production. While fossil fuels invisibilize energy production, biofuels leave marks in the physical landscape above the Earth's surface (Malm, 2016; Hornborg, 2017). Issues of land use in relation to agriculture and biofuel production are silenced or not recognized in the intersection between NFS and CPF.

As such, these two solutions characterize prime examples of ways in which the Swedish Government, 'by taking the lead', proposes solutions that are not generalizable on a global level. I want to emphasize, however, that I do not see a substitution of fossil fuels with biological sources as a negative development *per se*. However, such a transition without a simultaneous reduction of the total energy demand of the Swedish economy does, necessarily, claim access to resources elsewhere at the expense of local sovereignty and the common earth system, which has serious consequences for justice (Hornborg, 2017).

6.3.5 Market-Conditioned Self-Sufficiency

The aim of the NFS to increase overall food production "*could*", it states, "contribute to a higher degree of self-sufficiency" (my emphasis, Prop. 2016/17:104: 21). This would work to counteract the decreasing share of Swedish products in the Swedish consumption of food, which is an argument which is used to justify the need for a food strategy (ibid). The reason for the *could*, it seems, is the fact that the NFS sees promoting increased competitiveness and provision of information to consumers as actions towards self-sufficiency (Prop. 2016/17:104: 12). In effect, Swedish products are competing on the same market as international products, and an increase in competitiveness – the rationale seems to be – would make Swedish products more attractive to consumers in general, national and international alike. Informing consumers becomes a way of enabling the making of informed choices based on "e.g. health, sustainability, origin and ethics" (Prop. 2016/17:104: 17). Since the increase in production is to be demand-led, the 'free' consumer – in an act of individualizing responsibility – is charged with the responsibility of stimulating increased domestic production using their purchasing power; an expression of liberalism *par excellence* (Wainwright & Mann, 2013: 256).

The NFS considers self-sufficiency in terms of preparedness for situations of trade disruptions or war, rather than on a more general level of 'localizing food' for purposes of sovereignty (Prop. 2016/17:104: 14). In fact, instead of promoting increased national production on those grounds, it seeks to increase its exports. As such, instead of promoting a slow-down and downscaling of the social metabolism, it seeks to speed up and expand it based on the rationale that Swedish products should overtake market shares from production elsewhere, based on their advantage in sustainability. This aligns with the neoliberal food security argument, where availability reigns supreme, at the expense of a focus on the social relations and power relations of food (McMichael, 2009; Edelman et al, 2014; Rosset, 2003).

6.3.6 Export: Sustainability as 'Comparative Advantage' and Complementary Measures

As earlier discussed, one of the most central components of the NFS is the aim for increased production and export. The CPAP (Prop. 2019/20:65: 101-102) states "the climate efficiency of Swedish agriculture is high from an international perspective and that the production of food

by Swedish agriculture *should increase and overtake market shares* from food products produced under conditions creating bigger climate loads and are imported to the Swedish market" (emphasis added). In my contention, several fallacies are inherent to this argumentation.

Firstly, it is debatable whether Swedish products – presumed to be relatively more sustainable – which have been transported to another corner of the globe, are still sustainable. Socially, seen from a perspective of sovereignty, and ecologically, seen to emissions in transport, it is very dubious. Similarly, not sourcing products from local eco-systems but importing them from other parts of the world system is again an example of where ecological and economic values are not in sync. As such, while being a good solution for the Swedish national economy and self-image, the socio-ecological benefits of such strategy are dire. Further, this is related to the depoliticization of 'industriality', since Swedish agriculture might be more sustainable than production elsewhere, although presented as 'sustainable' despite its industrial nature. However, in this context, climate change is seen as an opportunity; "the future climate advantages that […] [Swedish] agriculture will see, in comparison to other regions, can only be realized if it is competitive and investments are made" (Prop. 2016/17:104: 15).

Secondly, the CPAP openly states that it will not reach zero-emissions in agriculture, given the aim of increased production, unless drawing on complementary measures within the ESR-sector. When looking to what the NFS promotes, it is an increase in Swedish food production based on its relative advantage in sustainability, as compared to other countries. In the CPAP, it is stated that the LULUCF sector might be possible to draw on to reach the national climate goals, due to the Swedish target for the sector being more ambitious than that stated in the ESR (Prop. 2019/20:65: 99). However, if not, Sweden will compensate for the emissions in question abroad (unless using geoengineering). As such, pursuing increased exports (aiming to substitute production elsewhere) within the frames set by the CPF, will likely necessitate appropriation of space outside Sweden's borders. This will, considering the expressed rationale that emissions should increase where it can be done most cost-effectively, will contribute to further use of the world system periphery as an entropy sink (Hornborg, 2012: 55-57).

6.3.7 Import: Consumption, Trade and Embodied Values

Emphasized throughout the CPF is the Government's concern with carbon leakage, whereby Swedish industry would relocate to other countries if the competitiveness of the Swedish investment climate is not ensured. Action is taken against this by increasing Swedish competitiveness (Prop. 2019/20:65: 103).

> A reduced Swedish food production leads to reduced environmental impact in Sweden. However, if the production is moved abroad, it means that also the emissions of greenhouse gases move abroad. To move the emissions […] contradicts the overarching Generational Goal […]. It also contradicts the objectives of the Food Strategy. (Prop. 2019/20:65: 102).

However, interestingly, Sweden is less concerned with trade as a way of displacing emissions. Although making clear that the share of Swedish produce on the national market having decreased, and that "production of food from Swedish agriculture should increase and take market shares from food produced in more climate harming ways and been imported to the Swedish market" (Prop. 2019/20:65: 101-102). This, again, falls back on the aim of increased competitiveness and incentivizing consumers to change the market dynamic. The focus of the NFS is on the Swedish food chain, but since it includes the consumer, I find it relevant to bring in the consumption of products produced abroad into the discussion.

Despite the large share of emissions from Swedish food consumption taking place abroad, the CPF sees "difficulties in establishing a long-term quantitative objective that also encompasses the emission from the Swedish consumption and therefore decides not to establish such an objective" (Prop. 2016/17:146: 29). The government notes "[i]t has not yet been analyzed in detail what has caused the emissions in other countries to increase" (Prop. 2019/20:65: 21). The CPF sees "difficulties in establishing a long-term quantitative objective that also encompasses the emission from the Swedish consumption and therefore decides not to establish such an objective" (Prop. 2016/17:146: 29). Further, it establishes that, as of today, the margins of error are large when calculating consumption-based emissions (ibid).

However, the CPAP takes action on consumption-based emissions by tasking the EOPB with preparing the issue further (Prop. 2019/20:65: 61-63). Additionally, the Government intends to improve consumption statistics, as well as to change taxation in order to incentivize reparation

and re-use of products (ibid). Whereas a change in the direction of more re-use and reparation, it could be seen as a futile effort to reduce emissions from domestic and international products, at the same time as promoting free movement of commodities (Prop. 2019/20:65: 61-63). For instance, upstream emissions in agriculture (which, I argue, are consumption-based), such as emissions from fertilizer production abroad are not accounted for. In the specific case of fertilizers, such emissions would be relevant to account for since most emissions are produced in their production process, and less when they are applied to soils. Importing industrial products where GHGs have been emitted in the production could constitute a way for ELD to work as a mechanism for Sweden to import embedded emissions – while being 'net-zero-emitters' – if not accounted for.

7. Conclusion

This work departed from an understanding of the industrial agricultural system as emission intensive, and the climate crisis as politically recognized. In line with this, I investigated how food is conceptualized in the Swedish National Food Strategy. Thereafter, I scrutinized the way(s) in which this long-term plan for the organization of the Swedish food domain speaks to the political consensus on the need to reduce net emissions to zero, represented by the Climate Policy Framework. Lastly, I provided a discussion on the need for a reconceptualization of food in the face of the ambitions to reach net-zero emissions.

In sum, it can be said of the conceptualization of food in the Strategy that it is – on the global level – one of scarcity, where more sustainable food needs to be produced, in the face of the intersection of climate change, population growth and increasing affluence. At the same time, the Swedish food sector is not seen to be harnessing its full potential. However, through increasing its production, competitiveness and productivity, Sweden will tap into the global demand for sustainable food and thereby stimulate global and national sustainable development, as well as the national economy. Increased national food production and global emissions reductions are seen to go hand in hand. The aims of the CPF and NFS are not presented as conflictive, but as compatible; simultaneously reaching them both is not seen to require any large-scale re-organization of food production.

Essentially, this compatibility is articulated within the post-political condition and underpinned by depoliticization of several elements. It disregards the industrial nature of food production and the socio-ecological metabolic flows that produce agricultural emissions. Instead, it targets the emissions themselves, using bio- and technological solutions which are not generalizable on a global scale, but rather risk displacing environmental burdens and further entrench patterns of environmental injustice. It further fails to recognize the limits that such solutions impose, such as the limited energy intensity and mobility of organic and renewable energy, and the consequences this has for the spatio-temporal organization of society. Had such factors been taken into account, conflict between the aims for the food and climate sector would have been inevitable, and called into question Sweden's self-image as a forerunner in the global food and climate arenas and its national Generational Goal.

For future research, quantitative components and methods for calculating resource flows will for similar studies strengthen the argument and provide a deeper understanding of metabolic aspects.

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Appendices

APPENDIX I

Economic Accounts for Agriculture at basic prices 2000-2017 at current prices (million SEK)

	2000	2005	2010	2016	2017
CROP PRODUCTION	**18 317**	**15 206**	**22 067**	**24 876**	**27 717**
Cereals	**7 104**	**4 197**	**6 621**	**6 675**	**2 068**
Industrial crops	**1 593**	**1 566**	**1 691**	**1 799**	**2 068**
Fodder crops	**5 215**	**4 715**	**7 783**	**9 155**	**10 585**
Vegetables	**2 848**	**2 990**	**3 450**	**4 429**	**4 743**
Potatoes	**1 183**	**1 234**	**1 919**	**1 932**	**1 970**
Fruit	**335**	**463**	**519**	**770**	**865**
Other crops and vegetable products	37	42	84	119	133
ANIMAL PRODUCTION	**20 432**	**20 224**	**22 967**	**25 402**	**27 660**
Animals	**9 203**	**9 259**	**10 983**	**14 060**	**14 353**
Animal products	**11 229**	**10 965**	**11 984**	**11 342**	**13 307**
TOTAL AGRICULTURAL PRODUCTS	**38 749**	**35 429**	**45 033**	**50 280**	**55 377**
TOTAL AGRICULTURAL SERVICES	**938**	**2 488**	**2 528**	**3 624**	**3 791**
TOTAL AGRICULTURAL PRODUCTION	**39 687**	**37 917**	**47 562**	**53 905**	**59 168**

Source: Statistics Sweden & SBA, 2019: 137

APPENDIX II

Imports and exports of agricultural products and foodstuffs. Million SEK/1000 tons

Commodity	Imports Million SEK	Imports 1000 tons	Exports Million SEK	Exports 1000 tons	Balance Million SEK	Balance 1000 tons
Animals	277	0,3	256	0,2	-21	-0,1
Meat and meat prep.	13 279	301,0	2 216	157,3	-11 063	-143,7
Dairy and eggs	10 365	386,7	3 794	215,1	-6 571	-171,6
Fish, crustaceans, molluscs and prep thereof.	42 449	718,4	35 765	758,9	-6 684	40,5
Cereals and cereal prep.	7 296	723,5	8 012	1814,6	716	1 091,1
Fruit and vegetables	23 767	1 730,4	3 537	222,6	-20 230	-1 507,8
Sugar, sugar preps.	3 003	186,1	1 666	136,5	-1 337	-49,6
Coffee, tea, cocoa, spices and manuf. thereof	10 370	240,4	5 045	107,8	-5.325	-132,6
Fodder	4 271	634,7	1 757	293,9	-2.514	-340,8
Miscellaneous products	8 222	297,5	9 032	319,7	810	22,2
Beverages	11 905	528,7	7 416	358,0	-4.485	-170,7
Tobacco and tobacco products	1 836	11,0	2 216	2,8	380	-8,2
Oil seeds and the like	1 220	268,9	297	59,2	-923	-209,7
Oils and fats	6 345	635,3	2 614	167,4	-3.731	-467,9
Total	**144 606**	**6 662,9**	**83 623**	**4 614**	**-60.983**	**-2 048,9**
EU countries %	61,1		75,4			

Source: Statistics Sweden & SBA, 2019: 221, 224

APPENDIX III

The Swedish Environmental Quality Objectives (Summary)

1. **Reduced Climate Impact**
   In accordance with the UN Framework Convention on Climate Change, concentrations of greenhouse gases in the atmosphere must be stabilized at a level that will prevent dangerous anthropogenic interference with the climate system. This goal must be achieved in such a way and at such a pace that biological diversity is preserved, food production is assured and other goals of sustainable development are not jeopardized. Sweden, together with other countries, must assume responsibility for achieving this global objective.

2. **Clean Air**
   The air must be clean enough not to represent a risk to human health or to animals, plants or cultural assets.

3. **Natural Acidification Only**
   The acidifying effects of deposition and land use must not exceed the limits that can be tolerated by soil and water. In addition, deposition of acidifying substances must not increase the rate of corrosion of technical materials located in the ground, water main systems, archaeological objects and rock carvings.

4. **A Non-toxic Environment**
   The occurrence of man-made or extracted substances in the environment must not represent a threat to human health or biological diversity. Concentrations of non-naturally occurring substances will be close to zero and their impacts on human health and on ecosystems will be negligible. Concentrations of naturally occurring substances will be close to background levels.

5. **A Protective Ozone Layer**
   The ozone layer must have replenished so as to provide long-term protection against harmful UV radiation.

6. **A Safe Radiation Environment**
   Human health and biological diversity must be protected against the harmful effects of radiation.

7. **Zero Eutrophication**
   Nutrient levels in soil and water must not be such that they adversely affect human health, the conditions for biological diversity or the possibility of varied use of land and water.

8. **Flourishing Lakes and Streams**
   Lakes and watercourses must be ecologically sustainable and their variety of habitats must be preserved. Natural productive capacity, biological diversity, cultural heritage assets and the ecological and water-conserving function of the landscape must be preserved, at the same time as recreational assets are safeguarded.

9. **Good-quality Groundwater**
   Groundwater must provide a safe and sustainable supply of drinking water and contribute to viable habitats for flora and fauna in lakes and watercourses.

10. A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos

The North Sea and the Baltic Sea must have a sustainable productive capacity, and biological diversity must be preserved. Coasts and archipelagos must be characterized by a high degree of biological diversity and a wealth of recreational, natural and cultural assets. Industry, recreation and other utilization of the seas, coasts and archipelagos must be compatible with the promotion of sustainable development. Particularly valuable areas must be protected against encroachment and other disturbance.

11. Thriving Wetlands

The ecological and water-conserving function of wetlands in the landscape must be maintained and valuable wetlands preserved for the future.

12. Sustainable Forests

The value of forests and forest land for biological production must be protected, at the same time as biological diversity and cultural heritage and recreational assets are safeguarded.

13. A Varied Agricultural Landscape

The value of the farmed landscape and agricultural land for biological production and food production must be protected, at the same time as biological diversity and cultural heritage assets are preserved and strengthened.

14. A Magnificent Mountain Landscape

The pristine character of the mountain environment must be largely preserved, in terms of biological diversity, recreational value, and natural and cultural assets. Activities in mountain areas must respect these values and assets, with a view to promoting sustainable development. Particularly valuable areas must be protected from encroachment and other disturbance.

15. A Good Built Environment

Cities, towns and other built-up areas must provide a good, healthy living environment and contribute to a good regional and global environment. Natural and cultural assets must be protected and developed. Buildings and amenities must be located and designed in accordance with sound environmental principles and in such a way as to promote sustainable management of land, water and other resources.

16. A Rich Diversity of Plant and Animal Life

Biological diversity must be preserved and used sustainably for the benefit of present and future generations. Species habitats and ecosystems and their functions and processes must be safeguarded. Species must be able to survive in long-term viable populations with sufficient genetic variation. Finally, people must have access to good natural and cultural environment rich in biological diversity, as a basis for health quality of life and well-being.

Source: SEPA, n.d.

APPENDIX IV

The Swedish Climate Act (2017:720)

1 § This Act contains provisions on the Government's climate policy, the purpose of this policy and how the policy will be implemented.

2 § The Government must implement climate policy that:

1. aims to prevent dangerous interference with the climate system;
2. contributes to protecting ecosystems, and present and future generations, against harmful effects of climate change;
3. focuses on reducing carbon dioxide and other greenhouse gas emissions and maintaining and restoring environmental functions that mitigate climate change and its harmful effects;
4. is based on scientific research and on relevant technical, social, economic and environmental considerations.

3 § The Government's climate policy must be based on the long-term, time-bound emissions target adopted by the Riksdag (Swedish Parliament).

The Government must set any other emissions reduction targets needed to achieve the long-term target. Climate policy must be implemented in a manner that enables climate targets and budgetary targets to interact.

4 § Each year, the Government must include a climate report to the Riksdag in its Budget Bill. This climate report must contain:

1. a description of emissions trends;
2. a description of the most important climate policy decisions during the year and the possible effects of these decisions on greenhouse gas emissions trends;
3. an assessment of whether further measures are needed and, if so, when and how any decisions on such measures may be taken.

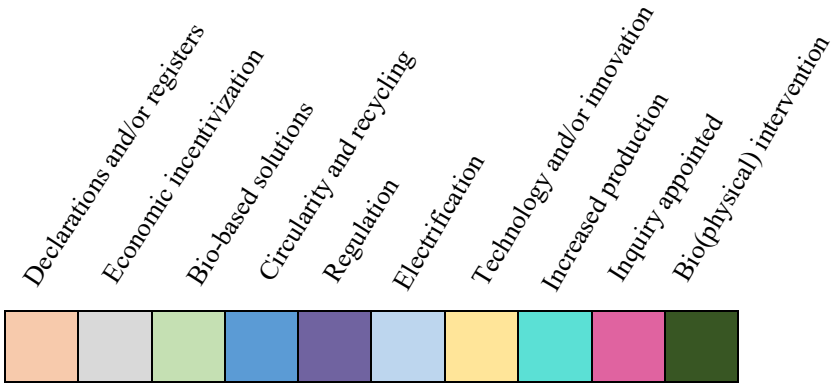
5 § Every fourth year, the Government must draw up a climate policy action plan. This action plan must be presented to the Riksdag the year following ordinary elections to the Riksdag. The action plan should contain a description of:

1. Sweden's commitments in the EU and internationally;
2. historical greenhouse gas emissions data, including the most recent emissions inventory;
3. emissions reduction projections;
4. the outcome of any emissions reduction measures taken;
5. planned emissions reduction measures, including an approximate indication of when these measures may come into force;
6. the extent to which adopted and planned emissions reduction measures can be expected to contribute to the achievement of the national and global climate change targets;
7. the extent to which adopted and planned measures in different expenditure areas affect the ability to achieve the national and global climate change targets;
8. any further measures or decisions that may be needed to achieve the national and global climate change targets.

Source: Ministry of the Environment and Energy, n.d.

Appendix V

Coding of Sectoral Actions



BUILDING AND CONSTRUCTION										
Climate declarations for climate-smart construction from a life-cycle perspective is introduced from 2022										
Requirements for reduced climate impact and life-cycle analyses in construction should be promoted, for instance through development of procurement criteria										
Construction in wood should increase										
Environmental risk assessment with regards to recycling in the building and construction industry should be develop. It should be easier to use rubble (*schaktmassor*)										

INDUSTRY										
Miljöbalken is reviewed to become an effective tool to reach the Climate Goals, particularly parts of it that concern assessment of business that cause greenhouse gas emissions but also other aspects, such as assessment of businesses with local environmental impacts that contribute to the reaching of the climate goals, but that today have a difficult time getting credit for their climate benefits in the assessment										
An inquiry is appointed to reach a more effective and appropriate environmental assessment that enables a quicker transition to a fossil free society										
Industriklivet is made more effective and is strengthened with 600 million SEK per year in the period 2020-2022. Within the frames of *Industriklivet*, there are, in addition, investments in technology that could lead to negative emissions										
Authorities shall give applicants support in how they in the best way can apply for funding or co-funding through the EU:s different funds for financial support										
The opportunities to, within existing support systems for the transformation of the industrial sector, contribute to the establishment of a plastic refinery shall be analyzed										
Looking ahead, the Government intends to prioritize the harmonized standardization effort more distinctly to facilitate plastic recycling										
Production of sustainable fuels, such as production and distribution of biogas, will be encouraged										
The Swedish Energy Agency *(Energimyndigheten)* will be tasked with analyzing the need and conditions for further policy instruments for biofuel plants with new technologies										
Exploration and new exploitation of coal, oil and gas is prohibited										
The Government will invest more in research, tests, and collaborations with the private sector as to in a sustainable and effective way sequester part of the emission that have already been made										
Sweden is a driving force to strengthen the conditions for sustainable development and production of batteries in the EU										
Strategic *samverkansprogram* continue to strengthen the societal engagement in the transition										

ELECTRICITY, HEATING & WASTE										
In principle, the net-zero target means that greenhouse gas emissions will need to be zero in the electricity and heating sectors by 2045. The electricity and heating sectors also have the prerequisites to, in some parts, contribute to negative emissions										
A national strategy for electrification will be developed, where the importance of electrification to reach a fossil independent transport system will be an important component										
It should be made easier and more profitable to invest in renewable energy one consumption										
Action on energy efficiency should be strengthened. For instance, sustainable design and energy labelling are important tools										
Obstacles to charging electrical vehicles through the electrical light system should be removed										
A national strategy for circular economy is developed and a broad review of the legal frameworks for recycling and handling of waste is undertaken in order to favor innovation and business activity										
A tax on waste incineration is introduced										
A tax on single-use products as well as a prohibition of more plastic products are investigated with the aim of reaching a more circular economy										
Producer responsibility for textile is investigated, in order to achieve environmental benefits through re-use and recycling of textiles										

FORESTRY & OTHER LAND USE										
The National Forest Programme is developed to further favor a growing forestry sector and sustainable forestry										
A bioeconomy strategy that contributes to increased access tio biomass as well as environmental and climate benefits will be developed										
Methods for increased carbon sequestration, e.g. agricultural land, will be encouraged										
Concerned authorities should be tasked with planning for a reduction in the emission of greenhouse gases from oranogenic soils and increase carbon sequestration in croplands and pastures										

AGRICULTURE										
An inquiry is appointed to propose measures and policy instruments to support a development towards a fossil independent agriculture.										
Continued efforts to minimize leakage of methane from fertilizer management. *Gödselsstödet* is reviewed.										
A national plan is developed for the implementation of the EU's Common Agricultural Policy (CAP)										

WORKING MACHINES										
The monitoring of emissions from working machines must be improved, as to create conditions for a direction towards reduced emissions. Therefore, a suitable agency will be tasked with reviewing the conditions for developing the registration of working machines										
It is important that working machines are not disfavored in relation to road vehicles when it comes o research, development, demonstration and market introduction										
A new climate premium will be introduced that e.g. encompasses electric working machines and aims to favor market introduction of such vehicles										

TRANSPORT										
In principle, the net-zero target means that the greenhouse gas emission from the transport sector will need to be zero by 2045										
The Government has clarified that the transport policy objective *funktionsmålet* needs to develop essentially within the frame of *hänsynsmålet,* where the objective that the greenhouse gas emissions from domestic transport excluding aviation should decrease with at least 70 percent by 2030 has been made into a milestone objective. A monitoring of if these changes have desired effects will be done										
The Environmental Objectives Preparations Board (EOPB) will be tasked with bringing forward a milestone target for the climate impact of aviation										
The EOPB will be tasked with preparing the opportunity for a milestone target also for maritime transport										
Relevant authorities will be tasked with efforts and co-operation to reduce the climate impact of transports										
The transport infrastructure planning will contribute to fossil freedom. The Climate Goals will constitute a central point of departure for future public infrastructure planning. The basis (*underlag*) for infrastructure planning should show how investments contribute to the opportunities to reach the Climate Goals.										
The Government intends to, to a greater extent, prioritize cost-effective measures that affect the transport demand and choice of mode of transport, as well as measures that generate a more efficient use of existing infrastructure (so called step 1 and step 2 measures)										
Stadsmiljöavtalen will be developed and become more effective to, e.g., favor alternatives to cars in cities										
A national ticket system for public transport will be introduced by 2022, at the latest										
Carpools will be stimulated. An inquiry is currently working with bringing forward a suggestion										
The Swedish Transport Administration (*Trafikverket*) will in collaboration with concerned authorities undertake and evaluate a demonstration project that supports the concept “mobility as a service” (“mobilitet som tjänst”), i.e. purchases or subscriptions of mobility services										
It will be analyzed how the compliance of rules regarding environmental zones (*miljözoner*) can be ensured										
Increasing investments in maintenance and in new railway tracks will be done, in accordance with the national plan for transport infrastructure 2018-2029										
The Swedish Transport Administration (*Trafikverket*) has been tasked with developing a long-term maintenance plan and action programme to ensure increased punctuality										

A review of how train journeys with different operators can be booked using the same platform should be done										
The Swedish Transport Administration (*Trafikverket*) has been tasked with investigating the conditions for procuring night trains to several European cities										
New mainlines for high-speed trains will be completed. The broad discussion on financing between seven governmental parties will be resumed and constitute the point of departure for the continued work										
The rules for the benefit value of cars should, in addition to the direction towards 'greener' (*mer miljöanpassade*) cars, reflect the principle of neutral taxation between benefit and cash wage										
A deduction for travel expenses that is distance-based but independent of mode of transport will be introduced										
The Swedish Tax Agency (*Skatteverket*) should assess the extent of errors regarding accounting for benefits associated with workplace parking										
A review should be done of the opportunity to design the transport subsidy (which shall compensate companies in the northernmost regions (*län*) so that consideration of climate aspects is taken										
Fiscal rules should be designed so that they facilitate bicycle commuting										
Sweden should, also in the future, take on a leading international role for it to be possible to tax fossil aviation fuels in professional aviation. On a global level, Sweden should promote a change of the policies tied to the Chicago Convention, which state that aviation fuel is not to be taxed										

On the EU level, Sweden should work for a change in the Energy Tax Directive that would allow for taxation of aviation fuels. In the short term, Sweden should work for that such aviation fuel taxation is enabled through bilateral agreements between member states, or even better, through a multilateral agreement										
The Swedish Transport Administration (*Trafikverket*) has been tasked with presenting a suggestion regarding environmental charges for takeoff and landing (*miljöstyrande start- och landingsavgifter*) in the aviation sector.										
Climate declarations for long-distance journeys will be introduced. Transport Analysis (*Tranfikanalys*) has been tasked with presenting a suggestion on a mandatory declaration for marketing and sales of long-distance journeys by plane, train, bus or ferry.										
The need for policy instruments to favour automatization and digitalization that contribute to transport efficiency and sustainable mobility will be analyzed.										
A support measure for charging infrastructure along bigger roads is introduced to cover the white spots where charging infrastructure would otherwise not have been implemented										
An electrification commission will be appointed to, e.g. speed up the electrification of heavy road transports and the transport sector as a whole.										
A suitable authority will be tasked with analyzing and suggesting measures for an improved charging infrastructure for different forms of housing.										
A suitable authority will be tasked with analyzing incentives for a transition to shore-side electricity in ports, e.g. though the implementation of environmental zones (*miljözoner*)										
Construction regulations will be complemented with requirements for charging infrastructure										
A long-term plan for construction and extension of Electric Road Systems will be developed										
At an inspection for *reduktionsplikten* for petrol and diesel, the quota levels will be sharpened for the period after 2020 so that it contributes to fulfilling the Climate Goal for transports										
An inquiry is appointed to suggest a year for when fossil fuels in domestic transports and working machines should be phased out in Sweden, as well as how a phase-out of fossil fuels in the EU can be achieved										
A requirement for mandatory blending of renewable fuels into aviation fuel will be introduced										
In a corresponding way to that in which it has been investigated for aviation, it will also be analyzed how maritime transport can transition to reduce greenhouse gas emissions										
Förändrade regler för fordonsskatt börjar tillämpas; det högsta uppmätta koldioxidvärdet, istället för det lägsta, ska användas från 2020.										

A review of the bonus malus system is conducted during 2020 as to strengthen and simplify the system.										
Opportunities for better consumer guidance regarding the energy consumption of light vehicles and carbon dioxide emissions, such as energy labelling, will be analyzed										
Sweden assumes a driving role to sharpen the carbon dioxide requirements for light vehicles in relation to the review of the system in 2023										
An inquiry is appointed for it not to be allowed to sell new petrol and diesel fuelled cars by 2030. Sweden is a driving force for the same ban to be introduced in the EU										
Premiums for environmental vehicles will be reviewed so that the vehicles in question stay in Sweden, to a greater extent. However, it is important that potential regulatory changes are compatible with EU Law, contribute to the fulfilment of national climate goals and does not contribute to unproportionate administration										
A suitable authority should be tasked with analyzing the conditions for, and the cost-efficiency of, a conversion subsidy for the existing fleet of vehicles										
Sweden supports, in the ongoing negotiation of the Eurovignette Directive, the polluter pays principle through carbon pricing										
Sweden is a driving force for sharpening the emission requirements for heavy vehicles by 2022										
A new system for environmental taxation of heavy vehicles will be investigated										
A test and research center for electromobility will be established with economic support from the Swedish Energy Agency (*Energimyndigheten*)										
Requirements for authorities to favor climate smart meeting forms and means of transport will be sharpened										
The Swedish Environmental Protection Agency (Naturvårdssverket) will be tasked with developing a new concept for internal climate shifts (*klimatväxling*) for public authorities										
Sweden is a driving force for the EU administration actively contributing to reduced emission through choices of meeting forms										
A new definition of environmentally friendly vehicles will be decided on, that follow the legal framework for bonus cars and that dictate what cars the state should procure										