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Cutting meat, cutting emissions:

Exploring a future strategy to governmental influence on consumer behavior by means of a 'meat tax' in the Netherlands

Photo source: https://static.pexels.com/photos/534/animal-countryside-agriculture-farm.jpg

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"A global shift towards a plant-based diet is vital to save the world from hunger, fuel poverty and the worst impacts of climate change."

(Carus, 2010, para.1)

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Finally, I am extremely grateful for the interest, time and openness of the 19 stakeholders I have interviewed for this research. Thanks to them I was able to collect an impressive amount of data and to obtain a comprehensive overview of the various actors, stakes and issues around livestock farming and the consumption of meat and dairy in the Netherlands.

Summary

The global demand for meat and dairy is historically steep and expected to continue growing over the next decades. This comes at a high price: intensive livestock farming does not only require a great input of energy, water and land, but also causes massive greenhouse gas emissions and other ecological externalities. Policymakers seem so far however reluctant to take radical action aimed at lessening the industry's negative impacts, e.g. by promoting a plant-based diet.

This hesitance is perceived as a major omission given the current need to mitigate climate change worldwide. This thesis offers a novel insight to the issue by focusing on a recently proposed intervention, namely a 'meat tax' (i.e. an excise tax on animal products to be paid by consumers) in the Dutch context. The research aims at exploring both the policy design of such a measure as well as a potential political pathway leading up to its implementation. Thereby, other policy instruments as well as the wider governance context are also being considered.

In terms of methodology, the thesis includes a literature review on policy instruments addressing consumer behavior, an analysis of the historical case of tobacco control as well as empirical data collection in the form of interviews with relevant stakeholders (e.g. policymakers, representatives of the industry, and NGOs). In order to identify the various interviewees' perspectives, the 17 sessions included *visioning* and *back-casting* exercises.

Throughout the research it became apparent that addressing citizens' awareness and consumption patterns with regards to meat and dairy intake can best be done through a policy mix, involving financial incentives (such as a 'meat tax' and/or subsidies), but certainly also communicational and educational measures as well as *nudges*. Establishing a clear link between one's diet, personal health and the environment seems to be key. In any case, production must be tackled at the same time in order to avoid maintaining the same level and intensity of livestock farming at higher export rates.

As most stakeholders expressed their desire for (highly) plant-based diets as well as a more sustainable and small-scale agricultural system in the future Netherlands, there is potential for common ground – and a strong role to be played by government in initiating and supporting the envisioned transformation and addressing identified barriers. Lastly, this research makes clear that a 'meat tax' can only be a tool as opposed to an end to itself in contributing to sustainable development.

Table of contents

1. Introduction

1.1 A GLOBAL ISSUE: LIVESTOCK AND THE ENVIRONMENT

Worldwide, meat consumption is historically high and still rapidly growing. In 2015, 95,4 kg/capita of meat were consumed in the United States, 68,3 kg/capita in the European Union (EU) and 50 kg/capita in China (OECD Data, 2016). Global dairy consumption is even higher with a per capita consumption of 200-250 kg milk equivalent/capita in Europe and North America and roughly 70 kg milk equivalent/capita globally in 2012 (OECD/FAO, 2013). Whereas consumption in the Global North has only slightly increased (and in some parts even started to decrease) over the last years, citizens of the Global South are continuously catching up and due to rising living standards moving from a dominantly plant-based (lacto-ovo vegetarian) to a meat-based (omnivorous) diet (Pimentel & Pimentel, 2003). In view of ongoing population growth, total global meat and dairy demand is predicted to double between 2000 and 2050 (Aiking, 2014).

The production of meat requires a significantly higher input of energy, water and land than the production of food grains (Pimentel & Pimentel, 2003). The resulting devastating ecological implications have been first publicly addressed by a major international organization in 2006, when the World Food Organization (FAO) analyzed the sector's externalities. It found that livestock farming accounts for 18% of global anthropogenic greenhouse gas (GHG) emissions, thereof 9% of CO_2, 35% of methane and 65% of N_2O and ammonia (Steinfeld et al., 2006). Moreover, the growing manure surplus in livestock producing countries, such as the Netherlands, has been causing major soil and water pollution due to high nitrogen and phosphate levels (Government of the Netherlands, 2017). As a consequence, scientists critically link global livestock production to questions of food security, climate change, deforestation, biodiversity loss as well as human health and animal welfare – in short, to sustainable development (Aiking, 2014; Garnett, 2011).

What seems like an obvious solution to this problem, namely a reduction in consumption and thereby production of animal products, is currently not yet addressed (or only to a limited degree) by state actors worldwide. Despite policymakers' hesitance to interfere with demand for meat and dairy, they are increasingly asked to take action. As an example, at the beginning of this year, the Dutch Institute for Public Health and the Environment (*Rijksinstituut voor Volksgezondheid en Milieu*, RIVM) has suggested "het duurder maken van dierlijke producten [engl. making animal products more expensive]" (Ocké et al., 2017, p.78) in order to influence consumer behavior, reduce meat and dairy intake and reach national climate goals.

1.2 KNOWLEDGE GAP

However, little is yet known about how a behavioral change regarding meat consumption through governmental intervention can be achieved concretely. It is still unclear which mode of governance and policy instruments are both feasible and effective in inducing a reduction in consumption, and how these can be successfully combined and implemented. Particularly with regards to economic incentives, such as taxes, “almost no empirical studies on interventions specifically targeting meat consumption” (Kiff et al., 2016, p.18) have been carried out to date. Earlier studies have rather focused on foods and beverages that are high in fat, salt and sugar. For meat and dairy, Wellesley et al. (2015) therefore suggest conducting further research on transferable lessons from other policy interventions in the fields of health and nutrition.

2. Research objective

In light of recent calls for higher taxes on animal products in multiple countries including the Netherlands, this thesis critically assesses the proposition of a 'meat tax' in the Dutch context. The study thereby looks at both a potential policy design and implementation strategy. As one can neither expect the political enforcement nor the public acceptance of such a controversial and unpopular measure to be straightforward (but rather a major obstacle), this thesis also attempts to sketch the Dutch governance landscape, the various actors involved as well as the political processes through which such a measure would be potentially proposed and enforced.

Responding to the presented gap in the literature, the research objective of this thesis is to explore the design of a 'meat tax' as well as political pathways for its future introduction in the Netherlands. This is done by deriving best practices from the literature as well as transferable lessons from the policy mix and political implementation around tobacco taxation. Moreover, by interviewing relevant stakeholders, different points of view on both the policy design and its actual implementation are collected. Thereby, 'meat tax' has been consciously chosen as a policy intervention that is current, concrete and controversial in order to trigger discussion and lay bare the political debate (and the inherently different ideas and value systems) around it. Since 'meat tax' represents only one policy option tackling the production and consumption of animal products, this approach also allows for discussing other related and possibly complementary instruments throughout the research. The findings should help issuing recommendations to policymakers as well other concerned and interested parties on how to successfully establish such an instrument in order to achieve a change in consumer behavior and to make a significant step towards sustainable development.

More concretely, this thesis project was initiated and designed by Utrecht University. However, contacts with RIVM were established in order to align with the organization's ongoing research on different future food scenarios for the Netherlands. RIVM is commissioned to conduct certain research in order to underpin governmental activity, but does not have the mandate and capacity to study and evaluate the actual political feasibility of certain propositions. As this thesis focuses on the specific policy design and political implementation of a 'meat tax', it aims to reveal exemplary pathways (and thereby important lessons) towards the putting in practice of such a theoretical proposal, independently complementing the work of RIVM.

Notably, this thesis is a explorative and multi-dimensional study aiming at understanding the bigger picture and at covering different aspects of the implementation of a 'meat tax' in the Netherlands. The results can serve as inspiration for future more in-depth research.

2.1 SCIENTIFIC RELEVANCE

The question of (reducing) future meat and dairy intake as well as the challenge for policymakers (e.g. national governments) to influence consumption behavior is increasingly raised in research. However, up until now, this topic has rarely been tackled in detail, which makes this thesis relevant to science.

This study is innovative in three main ways: firstly, the idea of a 'meat tax' is analyzed through the interdisciplinary lens of policy design, political pathways and governance. Secondly, the research is new to the field of transformation research, as it considers the concept of wider transformations towards sustainability departing from a concrete policy measure and using 'meat tax' as a starting point to think about the future. Thirdly, this study is original from a foresight perspective using an idea that is current, concrete and controversial in order to prompt conversation and to foster participant engagement. Moreover, working with a historical, comparative case as a comparative example and additional element for discussion is something new with regards to visioning and back-casting.

2.2 SOCIETAL RELEVANCE

Climate change brings about severe challenges and threats for humanity. At the Paris climate conference (COP21) in December 2015, 195 nations agreed to aim at limiting the increase in global temperature to 1.5°C. This implies the need for undertaking measures that drastically reduce current anthropogenic GHG emissions which greatly accelerate global warming once released into the atmosphere (European Commission, 2017). Animal agriculture generates relatively high emissions, however it is so far hardly targeted by policymakers (Garnett, 2011). Regarding the great potential of decreasing the industry's impact on global warming, this reluctance can be perceived as a dangerous omission in current climate change mitigation efforts. Therefore, it is important to conduct further research on policy interventions attempting to reduce meat consumption, 'meat tax' being one example. Moreover, it is especially important to look beyond the policy design alone, and to consider questions of political feasibility and wider governance of transformation as aimed at in this thesis.

3. Structure

The thesis report is structured as follows: after having presented the identified gap in the literature (chapter 1.2) and the resulting research objective of this thesis (chapter 2), the next section outlines the research background (chapter 4). Chapter 5 introduces the analytical framework set-up for this research, mainly consisting of existing theory on policy design and policymaking as well as the emerging literature on governance of transformations. Subsequently, the research questions (chapter 6) and framework (chapter 7) are included before describing in more detail the applied methods and research strategy (chapter 8). Chapter 9 contains the first part of the results, namely the literature review on policy instruments, complemented by examples from the case of tobacco control. The second part of the results (chapter 10) presents the history of US-American tobacco control focusing on the political pathways around the implementation of various, ever more stringent policy measures over time. The most elaborate section of this thesis (chapter 11) presents the results obtained from the conducted interviews. The results are then jointly discussed in chapter 12, resulting in derivable recommendations to policymakers. The thesis ends with concluding remarks in chapter 13.

4. Research background

4.1 LACK OF FAR-REACHING POLICY INTERVENTIONS

In view of the disastrous implications of livestock production, a cut in meat and dairy intake (and thus in emissions related to the production) could help tackling the global anthropogenic ecocrisis and reaching (inter-)national climate goals. Despite systematic evidence and official commitments to combat global warming, policymakers are however reluctant to address this issue (Kiff et al., 2016; Garnett, 2011). Other sectors contributing to high emissions (e.g. the transport sector) are, on the contrary, confronted with strong restrictions under EU law (Bähr, 2015). Regarding the production and consumption of animal products, the EU, national governments and market actors rely on agricultural intensification and technical innovation – thereby possibly further aggravating the ecological pressure (Bähr, 2015; Dagevos & Voordouw, 2013; Garnett, 2011).

This is amongst others because stringent measures are perceived as not in line with the prevailing neo-liberal economic system and the democratic principle of free consumer choice (Lang & Barling, 2013). They can thus be inconsistent with international trade law and objectives (Bähr, 2015; Reisch et al., 2013). The production cycle of most animal products consumed in the EU is often also very complex. Meat and dairy are traded within and beyond national boundaries with a great number of different actors being involved (Marquer et al., 2015). Consequently, the question is, where to start, whom to address and to hold responsible for change: farmers, the processing industry, retailers, or consumers? Furthermore, the great economic and lobbying power of the agricultural and food sector easily hampers governmental action in restricting the supply of certain goods (Vinnari & Vinnari, 2014; Reisch et al., 2013). Finally, agricultural policies traditionally work the other way around, actually highly subsidizing the industry and promoting consumption. This led to a system in which meat and dairy production has been constantly increasing over the last decades – offered at ever lower prices which fail at reflecting the industry's externalities (Simon, 2013).

Kiff et al. (2016) warn that on a global level, the "technical mitigation potential of supply-side agricultural mitigation options […] may be insufficient to prevent an increase in GHG emissions from agricultural production" (p.16), especially in view of the globally increasing demand for food. Therefore, there is an urgent need for demand-side mitigation policies, such as subsidies and taxation that influence consumption behavior. On a similar note, RIVM recently stated that the Netherlands will not be able to reach its climate and sustainable development goals (no more than 71-75 Mton CO_2 Eq. per year in 2030) if GHG emissions are not also cut by means of a change in diets (Ocké et al., 2017).

Nonetheless, so far only 'soft', mainly information-based policy instruments have been applied by those governments active already, which mainly inform consumers about the

linkages between meat consumption, environmental sustainability and human health. Examples include issuing policy reports and nutrition guides, carbon-labeling of foods and introducing “veggie days” in public procurement facilities (Aiking, 2014; Röös et al., 2014; Reisch et al., 2013). Apparently though, this is not enough, as current levels of production and consumption levels keep growing.

4.2 A CONTROVERSIAL APPROACH: THE ‘MEAT TAX’

A few frontrunners are meanwhile considering more stringent (market-based and regulatory) policies, such as the introduction of a higher value-added tax (VAT) on meat and dairy products to be paid by consumers (referred to as ‘meat tax’) (Reisch et al., 2013). After Sweden’s Board of Agriculture had been the first governmental authority officially suggesting a European-wide ‘meat tax’ in 2013 (Bähr, 2015), the Danish Council of Ethics recommended implementing a national tax on beef in order to internalize the product’s ecological impact and to raise awareness among consumers three years later. The country had implemented a similar tax on saturated fats in 2011 in order to combat overweight. Although repealed in 2012 (due to sharp critique from the retail sector and an increase in purchases of fatty products outside of Denmark), the policy had led to a significant reduction in sales of certain products within the country (Jensen et al., 2016; Kiff et al., 2016; The Economist, 2012). At the beginning of 2017, also Germany witnessed the pledge for a ‘meat tax’. The country’s Federal Environmental Agency harshly criticized the government for subsidizing agricultural practices that are harmful to the climate instead of raising higher taxes on animal products (FAZ, 2017). However, the suggestion was immediately repelled by the Minister of Agriculture and the Minister for the Environment (tagesschau.de, 2017).

Similarly, RIVM published a report in January this year (*Wat ligt er op ons bord? Veilig, gezond en duurzaam eten in Nederland*) analyzing the Dutch food system in terms of safety, health and sustainability. Ocké et al. (2017) present potential solutions to overcome current shortcomings, thereby explicitly advocating active government involvement. Amongst others they suggest "het duurder maken van dierlijke producten" [engl. making animal products more expensive] (p.78) in order to influence consumer behavior, reduce meat and dairy intake and reach national climate goals. Again, the proposition caused immediate reaction from policymakers, such as from the Minister of Economic Affairs who stated to be against such a measure, as it would greatly restrict consumer choice (van Dinther, 2017).

4.3 THE RATIONALE BEHIND TAXATION AND CONSUMPTION BEHAVIOR

The basic idea behind levying taxes on specific products is "the effect of price on consumption decisions" (Kiff et al., 2016, p.17). A higher price is supposed to incentivize consumers to purchase less. Yet, if price elasticity is low (i.e. the magnitude of consumption is rather unresponsive to an alteration in price), the effect of such a tax can be minimal. This effect is also influenced by other variables, such as the perceived necessity of a product and the provision of substitutes. Moreover, price elasticity for food is known to decrease as both Gross domestic product (GDP) and income rise. Consequently, lower income households might be more affected by a uniform tax (Kiff et al., 2016).

4.4 EXCISE DUTIES ON TOBACCO

Inducing behavioral change by means of taxes proved to be effective with regards to other 'harmful' (i.e. causing different kinds of societal costs) consumer goods in the past – even despite a strong lobby and high demand. As an example, the use of tobacco has been successfully decreased over the last decades, amongst others by means of persistent and rising taxes all around the world. The main reason for governmental intervention in tobacco supply is the great health risk (and resulting high external costs) related to smoking (WHO, 2017).

After scientific evidence of tobacco being carcinogenic had reached critical mass in the 1950s, governmental regulation became more likely (Courtwright, 2005). Since the 1980s, legislation aiming at reducing tobacco use has been widely promoted, implemented and steadily extended (European Commission, 2009). The total tax burden for a pack of cigarettes has been substantially raised over the last years and presently is around 75% of the actual retail price in the EU (Cnossen, 2009).

The World Health Organization (WHO) found that increasing the price for cigarettes by 10% leads to a decrease in consumption by 4% (WHO, 2017). Statistics show indeed that smoking became significantly less popular over the last decades. For example, the share of smokers among German 18- to 25-year-olds decreased from 45% in 2001 to 26% in 2015 (Bundesministerium für Gesundheit, 2016). Similar trends can be witnessed in other states, e.g. the Netherlands (Trimbos instituut, 2016). However, governmental intervention tackling tobacco consumption goes beyond taxation.

4.5 TOBACCO CONTROL: A HOLISTIC APPROACH AND POLICY MIX

Next to taxes, tobacco control involves measures, such as bans on television commercials and smoking in public places, labeling of packaging, anti-smoking campaigns as well as prevention and education, which have successfully rendered smoking less attractive and visible to citizens (European Commission, 2009; Courtwright, 2005). This holistic approach employing a mix of different policy tools to influence consumption patterns and at the same time dealing with strong lobbying from the industry, is impressive – and functioning. Not only has it caused a decrease in demand, but also a shift in the societal perception of tobacco usage, nowadays generally perceived as unhealthy (Alemanno & Carreño, 2013).

4.6 TOBACCO AND MEAT

The question arises whether a similar approach with a 'meat tax' as core measure can be used in order to reduce meat and dairy intake. On the one hand, tobacco and animal-based foods both represent products whose consumption imposes high costs on societies: in the case of tobacco, for dealing with the resulting health issues whereas in the case of meat and dairy, mainly with the environmental externalities. Apart from ecological pressures, a too high consumption of (red) meat is also deemed to be causing cancer, obesity, heart disease, type-2 diabetes etc. (Wellesley et al., 2015). Furthermore, the consumption of the two types of products can be considered an important cultural practice as well as an expression of irrational behavior: whereas tobacco has been proven to be an addictive drug, some authors frame the eating of certain animals as being conditioned by a belief system called *carnism* (Beyond Carnism, n.d.). According to this theory, people in meat-eating cultures typically think that the consumption of animal products is a given (despite not being a necessity) and hence do not reflect upon their behavior. Moreover, both industries are characterized by a powerful lobby that influences both policymakers and consumers.

On the other hand, one can argue that tobacco is a non-necessity, whereas meat and dairy are generally perceived as staple foods. The price elasticity for tobacco is thus higher. Consequently, public and political acceptance of a 'meat tax' as a controversial intervention can be expected to differ (Kiff et al., 2016).

5. Theory and analytical framework

To investigate the research objective of exploring the design of a policy intervention incorporating 'meat tax' as well as political pathways for its future introduction in the Netherlands, a two-fold analytical framework is used. The framework is based on (1) the theoretical body around policy instruments directed at influencing consumption behavior and (2) the *Multiple Streams Framework*, which can be used to study the agenda-setting phase of a policymaking process.

Moreover, the results are reflected against the background of (3) the governance of transformations. This research field is still in its infancy and does not yet offer an analytically robust framework to study transformations. Nevertheless, it still allows for an additional examination of the issue at hand that goes beyond the mere focus on a particular policy intervention and looks at the wider societal implications.

This combination of different lenses is supposed to enable an analysis of (1) what a policy mix around a 'meat tax' could look like, (2) how the intervention could get onto the political agenda and put into place, but also (3) how such an endeavor could fit into a wider societal transformation towards sustainability.

Moreover, a definition of 'meat tax' as understood for the purpose of this research is provided.

5.1 POLICY INSTRUMENTS FOR INFLUENCING CONSUMPTION BEHAVIOR

In terms of the actual policy design, a 'policy instrument' or 'tool' is defined as "set of techniques of governance by which institutional actors [i.e. governments] support and effect social change towards a defined goal" (Wolff & Schönherr, 2011, p.45), usually involving state authority. Governments have different kinds of policy tools at hand when aiming at a change in demand for consumer goods. According to the authors, four types of policy instruments can be distinguished (directly targeting individual behavior or the given framework conditions): regulatory, economic, communication-based as well as procedural-voluntary (self-regulating) instruments. Lehner et al. (2015) complement this array by so called *nudge* tools (figure 1).

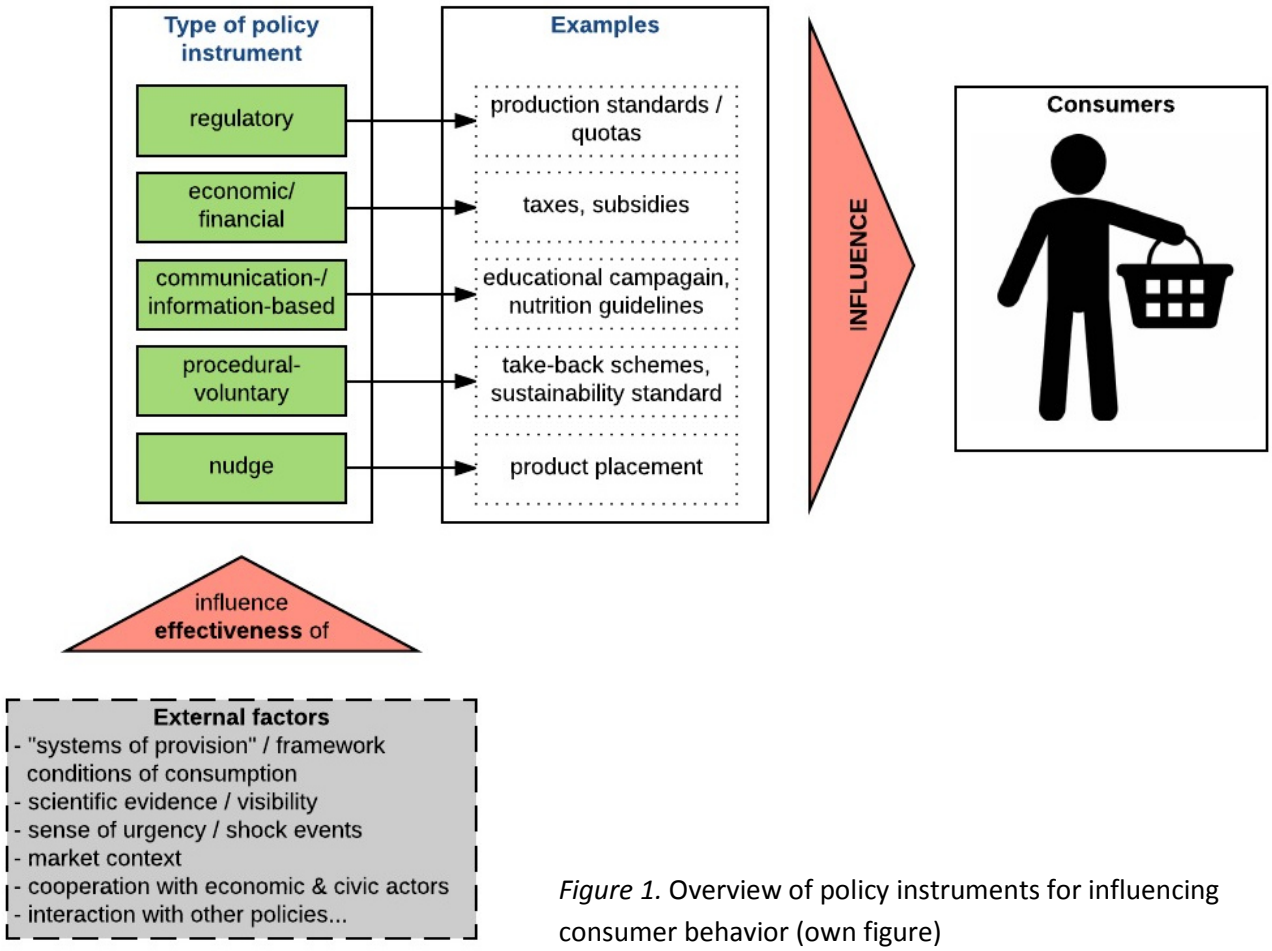

Figure 1. Overview of policy instruments for influencing consumer behavior (own figure)

The different types of policy instruments as well as potential external factors that influence their effectiveness are further described and explained by means of examples from the case of tobacco control in the first part of the results.

5.2 POLICYMAKING AND AGENDA-SETTING

There are several frameworks for the study of the political and power dynamics around policymaking and the different determinants that account for the fact that some issues make it onto the political agenda, are broadly accepted, developed into concrete policy programs and implemented by the government.

The original intention of this research was to draft a concrete implementation pathway of a 'meat tax', going from the initial agenda-setting to the policy's actual enforcement. Therefore, using the *five-thread (stream) model of policy processes* by Howlett et al. (2016) had been considered – a framework that integrates Kingdon's Multiple Streams Framework with Lasswell's *policy cycle* in order to explain entire policymaking processes.

However, throughout the interaction with relevant stakeholders, it became clear that studying the agenda-setting phase as first step of a longer policymaking process was more appropriate. Given that the idea of a 'meat tax' is still very new and currently only supported by few actors in the Netherlands, the most important and immediate concern turned out to be the question of how such an intervention could get onto the political agenda. In view of the data obtained, the comprehensive framework by Howlett et al. (2016) would thus have run the risk of being inapplicable to the results. Therefore, the Multiple Streams Framework (Cairney, 2013; Zahariadis, 2007) with a more focused view on the agenda-setting phase has been chosen.

The Multiple Streams Framework consists of three parallel streams:

- the *problem* stream (i.e. certain conditions that are publically perceived as requiring governmental action, whereby attention can rise due to focusing events or if changes to these conditions contradict prevailing values),
- the *policy* stream (i.e. a dynamic community of bureaucrats, academics, businesses and non-governmental organizations (NGOs) that consider different policy solutions to these problems over time, whereby specific interventions will be favored based on their technical feasibility and value acceptability), and
- the *political* stream (i.e. the national mood, the support or opposition of pressure groups, elections and legislative turnover, all influencing the political agenda-setting).

The first critical junction in a policymaking process occurs when these three streams are coupled and a so called *policy window* opens. This is when an issue gains the attention of stakeholders in the different streams, e.g. due to a focusing event or in the context of institutionalized routines. In such moments, so called *policy entrepreneurs*, influential actors (e.g. lobbyists with access to policymakers), can take advantage of a window and move certain items (both problems and solutions) onto the political agenda. The policy

entrepreneurs' success thereby depends on their access to policymakers, available resources and persuasive power (Cairney, 2013; Zahariadis, 2007).

5.3 GOVERNANCE OF TRANSFORMATIONS

Additionally, the issues around policymaking with regards to the production and consumption of animal products can be considered as part of a wider societal transformation towards sustainability. A future in which the intake of meat and dairy is lower than today, might, for instance, also involve changes to the prevailing agricultural practices or the public knowledge of food production and nutrition. From that perspective, such a transformation is hence about more than the pure implementation of a policy intervention such as a 'meat tax', but rather concerns many different interrelated realms and actors. Patterson et al. (in press) refer to 'transformations towards sustainability' as "fundamental changes in structural, functional, relational, and cognitive aspects of socio-technical-ecological systems that lead to new patterns of interactions and outcomes" (p.2).

The emerging research field around governance of transformation (see also Feola, 2014) thereby looks amongst others at the deliberate triggering and navigating of such change by different stakeholders – government being one of them. The question remains to what extent transformations can actually be purposefully fostered, given the fact that policymaking is most often characterized by incremental, piecemeal action. Moreover, when approaching transformations from a normative point of view (i.e. as a preferable development), the authors find that they are likely to be very political and contested, since different stakeholders will find themselves affected and face loss or gain. This is also because those promoting change depart from a specific political perspective and worldview, incorporating their personal values in their vision of the future.

Nevertheless, it is argued that also less substantial, though concrete and complete measures can eventually create momentum and stimulate larger-scale innovation – especially when these so called "small wins" take place largely unnoticed, in different contexts, and continuously, possibly growing in size: "A series of wins at small but significant tasks, however, reveals a pattern that may attract allies, deter opponents, and lower resistance to subsequent proposals" (Weick, 1984, p.43). Furthermore, this approach of scaling down big societal problems enables learning and adaptation in a stepwise fashion.

The concept of 'incremental change with a transformative agenda' attempts to combine the former idea of long-term, high-level transformations and the latter recognition of the political reality of short-term incrementalism. It refers to a situation in which "a normative focus on sustainability transformations helps to orient incremental efforts (such as policy change) within a broader narrative of transformative change […] creating new path-dependencies" (Patterson et al., in press, p.4).

Finally, the authors point to a number of barriers that can hinder a transformation towards sustainability, such as time pressure and a resulting focus on incremental policy change, strong opposing interests, existing path dependencies as well as poor coordination and inadequate representation. Moreover, they underline the difficulty of analyzing change from an ex-ante point of view, as transformations towards sustainability neither follow a clear sequence of steps nor include obvious turning points. The authors conclude that most likely a combination of bottom-up self-organization and top-down steering are required for a transformation to take place, being the result of parallel and complex interactions across multiple sectors over time (Patterson et al., in press).

5.4 'MEAT TAX' AS A POLICY TOOL

The idea of levying taxes on environmental externalities was introduced by Arthur Pigou in 1920 (Vinnari & Tapio, 2012). The 'meat tax' is thus an example of a *Pigovian* tax, which is a tax that "adjusts the market for goods that cause externalities by raising the goods' costs and thereby reducing demand for them" (Simon, 2013, p.169).

For the purpose of this research, the 'meat tax' is understood as a federal excise tax imposed on all animal products at the point of sale. Thus, it is similar to a usual VAT which is also directly paid by the buyer (i.e. the consumer) and not by the manufacturer. According to Simon (2013) and Singer (2009), a 50% tax on "all domestic retail sales of meat, fish, eggs, and dairy" (Simon, 2013, p.172) is desirable if supposed to be effective. This tax also applies to food items that contain any product of animal origin as an ingredient only. Setting thresholds would both be impractical to enforce and costly to administer. This stringent interpretation is supposed to incentivize producers to eliminate or replace animal foods by plant-based ingredients where possible (Simon, 2013). The referenced RIVM report does not specify the rate for the suggested 'meat tax'. The German Environmental Agency advocates raising the tax on animal products from 7% to 19% (tagesschau.de, 2017). Following Simon (2013) and Singer (2009), this is however far from enough to discourage consumption.

6. Research questions

From the research objective and analytical framework, the following central research question (RQ) is derived:

RQ: *In what form and through which political pathways could a 'meat tax' be a feasible policy instrument to reduce citizens' meat consumption in the future Netherlands?*

To structure the answering of this question, four sub-questions (SQ) have been formulated:

SQ1: *What kind of policy tools addressing consumption behavior can be identified in the literature and in the case of tobacco control specifically, and what is their relevance with regards to a policy mix around 'meat tax'?*

SQ2: *What can be learned about the processes of agenda-setting, policy formulation and implementation from the history of political action tackling tobacco consumption?*

SQ3: *What do relevant stakeholders think about an ideal policy mix around a 'meat tax' for the future Netherlands?*

SQ4: *What pathways do relevant stakeholders envision to make such a policy intervention politically acceptable, and how do they think can existing barriers be overcome?*

7. Research framework

The research questions have been approached by adhering to certain steps as presented in the research framework below (figure 2):

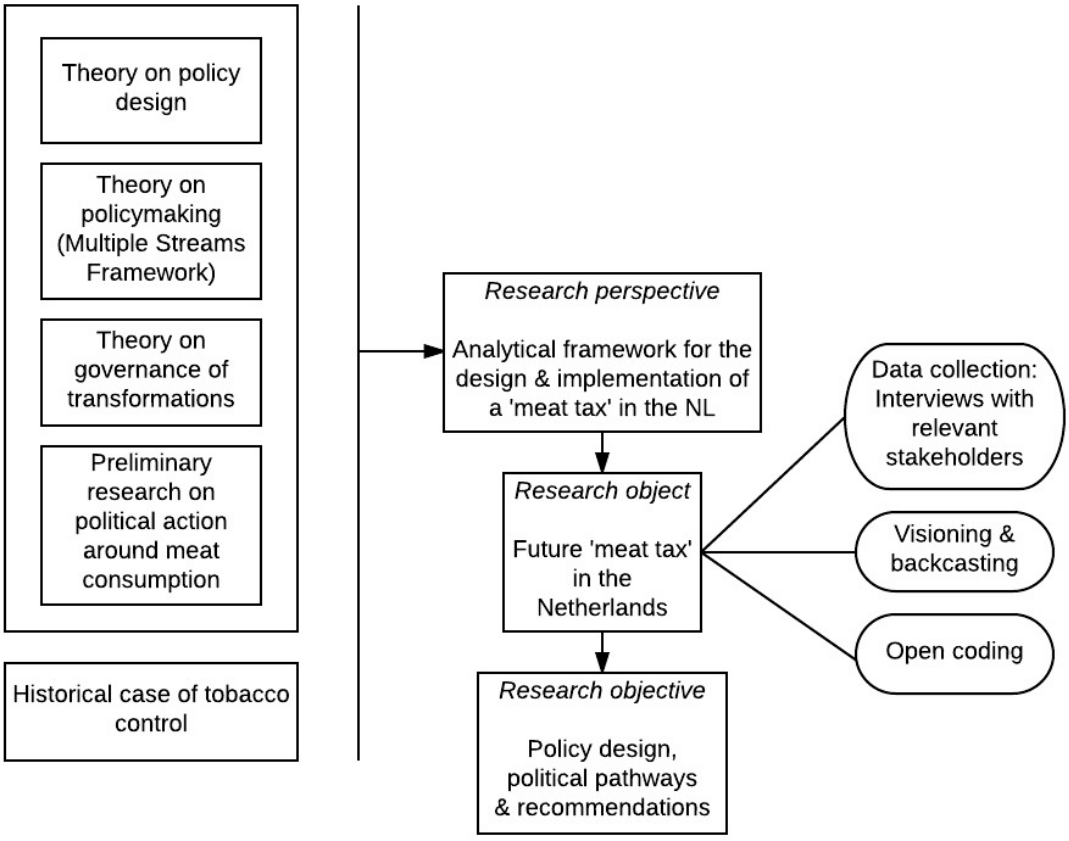

Figure 2. Research framework (own figure)

Based on the three bodies of theory (policy design, policymaking, and governance of transformations), preliminary research on governmental action with regards to meat and dairy production and consumption as well as the historical case of tobacco control, an analytical framework is constructed. This together creates the research perspective from which the research object of this study, a future 'meat tax' in the Netherlands, is analyzed. The theory is enriched by empirical data collection, consisting of interviews with relevant stakeholders (including visioning and back-casting) and a close analysis of the resulting material by means of open coding. Finally, it is aimed at providing an overview of the most important ideas, lessons learned and recommendations to policymakers regarding both the potential design and implementation pathway(s) of such a policy intervention.

8. Methods

8.1 RESEARCH MATERIAL

The research material for this thesis consists of scientific literature (e.g. journal articles and books), other documents (e.g. policy reports), and empirical data collected during interviews.

Firstly, scientific literature and other documents were used to provide the theoretical overview of available policy instruments and their utilization in influencing consumer behavior (SQ1). For the purpose of the analytical framework, also scientific literature on policy processes and political pathways as well as governance of transformations has been considered. Moreover, existing research on policy action addressing meat consumption in particular has been studied.

For the case of tobacco control (SQ1, SQ2), a similar approach has been followed. Scientific literature and other documents have been examined regarding the employed policy tools and their impacts as well as the political and wider societal processes leading to their implementation.

The eventual examination of the design and implementation pathways of a policy mix around a future 'meat tax' is further based on the interviews conducted with relevant stakeholders in the Netherlands. The empirical data allows for a triangulation of sources, for enriching the theoretical insights and for increasing the overall validity and applicability of the research. The semi-structured, in-depth interviews form an important part of the practice-oriented phase of the research in which essential drivers and barriers regarding the introduction of stringent policy measures tackling meat consumption (and a 'meat tax' in particular) within the given governance landscape were identified as well as different opinions on the concrete policy design were collected (SQ3, SQ4).

8.2 RESEARCH STRATEGY

To gather and process the research material, the following strategy has been followed.

LITERATURE REVIEW

The first part of the thesis mainly involved a desk research as well as occasional exchange with researchers at RIVM. The study of the theoretical background on policy tools tackling consumption behavior and the close analysis of both the policy design and the political implementation process in the case of tobacco taxation were conducted by means of a

literature and document review. This resulted in an overview of best practices concerning governmental influence of consumption behavior and perception.

Secondly, it has been explored whether and how the identified factors identified in the case of tobacco are transferable to the envisioned policy mix around a 'meat tax'.

INTERVIEWS WITH RELEVANT STAKEHOLDERS

Subsequently, relevant stakeholders in the field were interviewed in order to collect qualitative empirical data. The interviews allowed for the extraction of different perceptions on both the design of the policy mix around a 'meat tax' and on necessary policy processes through which its political acceptability and actual enforcement in the Netherlands could be achieved.

Five categories of relevant interviewees were identified: representatives of political parties, policymakers from various ministries, researchers, stakeholders from the industry (including retail) as well as NGOs. The interviewees were either recruited via already existing contacts at RIVM, Top Sector Agri&Food, PBL Netherlands Environmental Assessment Agency (*Planbureau voor de Leefomgeving*) and Utrecht University or approached directly. In total, 19 interviewees were interrogated in 17 semi-structured, in-depth interviews (two interviews were held with two interviewees at the same time) of at least one hour each (see Appendix 1 for full list of interviewees).

INTERVIEW STRUCTURE AND QUESTIONS

The interviews consisted of two main blocks. Whereas the first part entailed a set of semi-structured questions, the second part involved a visioning and back-casting exercise (see Appendix 2 for interview set-up and questions).

To start off with, the interviewees were asked to what extent their daily work was related to the fields of livestock production and/or meat and dairy consumption. This often directly led to them arguing whether and why they perceived certain elements around the topic as an issue. Moreover, they were supposed to explain if they knew of any current initiatives and/or actors that would tackle either the production or consumption side in order to overcome the various problems raised. The first phase of the interview was also used to pose a couple of specific questions to each of the interviewees: for instance, related to ongoing projects (e.g. in the case of Milieudefensie, a recently launched campaign on the role of retail in dairy production) or their particular industry and position (e.g. in the case of GYS, on the role of and recent developments in hospitality with regards to promoting plant-based foods). This approach allowed for learning about the stakeholders' current work, stake and prior experience in the field of livestock production and consumption of animal products.

VISIONING & BACK-CASTING EXERCISE

Afterwards, the various stakeholders were invited to take part in a so called *visioning* and *back-casting* exercise, a recognized participatory method for engaging with strategic change and planning (e.g. Vervoort et al., 2014; van Vuuren et al., 2012; Kok et al., 2011; Dreborg, 1996). By applying this approach to the topic at hand, this study is building upon the method by looking at the envisioned implementation of an intervention that is current, concrete and controversial as well as by including a historical case in the exercise.

In the first part (the visioning), the interviewees were requested to imagine their preferred future Netherlands with the only precondition that the consumption of animal products has been significantly reduced, regardless of the likeliness of such a situation. They were thus requested to sketch what *should* happen in the future according to them (e.g. regarding people's diets, societal values, the Dutch farming sector). The ideas were collected on post-its and clustered on a table. Moreover, they were asked to implement some sort of higher tax on animal products into that vision, whereby the concrete design was left to the interviewees themselves.

The second part of the exercise involved a back-cast. Back-casting is a reflexive and iterative process for working backwards from a desirable future. The method allows for identifying the necessary steps that need to be taken to get from that future back to the present situation. At each step, the question is raised: "If we want to reach [current step], what would need to be in place/who would need to do what for that to be attainable?". This way of thinking overcomes the risk of drawing up steps that are a mere continuation of the current conditions, but rather enables people to discover a broader spectrum of options.

Conducting this exercise with every stakeholder enabled an analysis of what they individually regarded as main drivers (and barriers) for the implementation of a policy mix around a 'meat tax' in the Netherlands.

HISTORICAL BACK-CAST OF TOBACCO CONTROL IN THE UNITED STATES

During the interview, the interviewees were given a one-page chart depicting a finished back-cast for the historical case of tobacco control in the United States, which had been developed during the literature review. Whereas about one half of the interviewees got to see the chart before engaging in their own back-cast (after having crafted their preferred future vision), the historical back-cast was presented to the other half only after having finished with their pathway. The idea behind this procedure was to observe whether the interviewees would use the pre-drafted back-cast as a reference, implement elements of it in their own pathway or react to the comparison in a certain way.

ANALYSIS AND EVALUATION OF INTERVIEWS BY OPEN CODING

The interviews were evaluated by means of open coding (e.g. Hennik et al., 2011) with the qualitative data analysis software *NVIVO* (see Appendix 3 for coding structure). The entire interview material was thereby clustered into 100 different elements (so called *nodes*).

While studying the interviews in greater detail, a number of common elements that multiple interviewees considered desirable in their preferred future became apparent. Also during the back-casting, various stakeholders pointed to similar steps that they thought are required to attain their vision. Subsequently, five (partial) pathways leading up to five main futures combining the ideas of multiple interviews were identified and drafted. Moreover, concrete ideas on the policy mix around a 'meat tax' were collected.

FORMULATION OF RECCOMENDATIONS

Subsequently, the different interrelations between the five clusters were determined. Analyzing the results against the background of the analytical framework, insights into both the policy design and potential political pathways around the implementation of a policy mix around a 'meat tax' could be gained, and recommendations to policymakers were formulated.

9. Results I.I: Policy instruments for influencing consumption behavior in theory and in the case of tobacco control

This chapter presents the results of the first part of the conducted literature review – a synopsis of existing policy instruments generally employed by governments to influence consumption behavior as well as in particular in the case of tobacco control.

In view of their discursive power and exclusive authority, governments can play a crucial role in influencing existing consumption practices by shaping "infrastructures, knowledge, incentives, norms and expectations" (Wolff & Schönherr, 2011, p.44). More concretely, governments are able to influence the attractiveness and availability of certain products and services, their usage and/or disposal. As a consequence, the consumption of a specific product (group) can increase, decrease or shift to another product (group). This can be achieved by either adjusting the framework conditions of purchase and use (e.g. the consumer's physical environment) or by directly targeting individual consumption (e.g. the consumer's motivation).

The case of tobacco can hereby serve as an introductory example: in most countries of the Global North, one does not only have difficulties finding cigarettes when wandering through an average supermarket (where they are virtually hidden behind shutters next to the check-out), but also the price for a pack is so high that at least those living on a tighter budget might think about their purchase twice. This is the result of long-lasting governmental involvement in tobacco consumption practices by means of different policy measures, such as restrictions on the presentation of tobacco products in stores as well as excise duties.

In order to guide consumer behavior, governments can employ a wide range of so called *policy instruments* or *tools*. Policy instruments represent the direct output of a policy process and can be defined as a "set of techniques of governance by which institutional actors [i.e. governments] support and effect social change towards a defined goal" (Wolff & Schönherr, 2011, p.45). In the above case, the defined goal is to prevent citizens from smoking (the policy's outcome) and to thereby protect their personal and others' health as well as save healthcare costs (the policy's impact) through regulating both their purchasing environment and the product's price.

9.1 TYPES OF POLICY INSTRUMENTS

Wolff & Schönherr (2011) divide these different types of policy instruments into four categories, which are referred to throughout this research: regulatory, economic, communication-based and procedural-voluntary (self-regulating). Lehner et al. (2015) complement this array by so called *nudge* tools. Other authors use similar categories to

describe the different types of policy measures generally applied (e.g. Reisch et al., 2013). The categories are not necessarily exclusive, but actually often overlap.

This array of policy instruments proved to be relevant in the case of tobacco control and/or are expected to form an important part of a policy intervention around a 'meat tax'. By referring to examples from the policy mix addressing tobacco consumption, the different tools are explained in more detail below.

REGULATORY INSTRUMENTS

Regulatory tools involve binding requirements for certain stakeholders and activities as dictated by e.g. national law. Non-compliance leads to sanctions (Wolff et al., in press).

An example from the case of tobacco is the prohibition of advertising through print, radio, the internet and at sport events that entered into force with the EU Tobacco Advertising Directive (2003/33/EC) in 2003 (Britton & Bogdanovicia, 2013). Moreover, an increasing number of countries gradually banned indoor smoking at e.g. workplaces, restaurants, shopping centers as well as in public transport by means of indoor air laws (ibid.; Cheng, 2012; Clancy, 2009). Another example is the restricted access to tobacco products for youth. Whether in the Netherlands or in Hong Kong, retailers are not allowed to sell tobacco products to customers of 17 years of age and younger (Rijksoverheid, 2017; Cheng, 2012). One intended effect is the denormalization of tobacco use which through the above measures becomes less convenient and pleasurable, and thereby less visible in public space (Chapman, 2008; Cummings, 2002).

However, not only consumers but also tobacco manufacturers are faced with regulatory measures, e.g. with regards to the content and packaging of their products (Clancy, 2009). In 2012, Australia was the first country to initiate standardized tobacco packaging, prescribing brand information to be displayed in a uniform font and layout next to large graphic health warnings. As a consequence, tobacco products appeal less attractive, health warnings are more directly noticed and manufacturers are prevented from creating brand identity (Britton & Bogdanovicia, 2013).

ECONOMIC INSTRUMENTS

Economic policy instruments include financial incentives, such as subsidies (positive incentives) and taxes (negative incentives). As this research is focusing on 'meat tax', the concept of taxes is explained in most detail.

The basic idea behind levying taxes on specific products is "the effect of price on consumption decisions" (Kiff et al., 2016, p.17). A higher price is supposed to incentivize consumers to purchase less. Yet, if price elasticity is low or inelastic (i.e. the magnitude of

consumption is rather unresponsive to an alteration in price), the effect of such a tax is supposedly minimal, unless the tax level is set relatively high. However, such a high tax level might not be politically feasible (Kallbekken et al., 2010).

In the case of tobacco control, taxes are employed already for decades by governments worldwide in order to raise tobacco prices and thereby discourage consumption. Tobacco taxation comes in different forms, such as VAT, import duties and excise taxes, whereby the latter are considered the "most important for achieving the health objective […] since they are uniquely applied to tobacco products and raise their prices relative to the prices of other goods" (WHO, 2017, para.4). Tobacco taxation is promoted by the WHO as the most effective tool to decrease demand. However, taxes on tobacco products are generally accompanied by other policy measures, such as education and bans on smoking in public areas.

The effect of a tax is influenced by a various variables, such as the provision of substitute goods and the perceived necessity of a product. Moreover, for food in particular, the price elasticity is known to decrease as both GDP and income rise. This means that the financial stimulus with regards to food needs to be strong and consumption taxes high enough to bring about an actual change in behavior (Stevens, 2010). This is, however, often hampered by political constraints and industry lobbying.

One reason for this resistance is the concern of lower income households being more affected by a uniform tax than wealthier citizens, which can have a potential impact on food security (Just & Gabrielyan, 2016; Kiff et al., 2016). In such a case, the OECD (2008) recommends graduating taxes "according to consumption levels, combined with compensation for poorer households" (p.13). On a similar note, Just & Gabrielyan (2016) suggest employing a combination of subsidies and taxes in order to stimulate consumers to purchase just the right foods and amount of calories. In terms of tobacco use, tax policy showed indeed to be specifically effective with youth and in developing countries characterized by lower incomes (Goel & Nelson, 2006).

In the past, taxes on unhealthy ingredients (e.g. fat, sugar) have had negligible effects, just as educational measures. This might however be due to the relatively small increases in taxes in combination with the low price elasticity for certain products (Just & Gabrielyan, 2016).

The revenues generated through taxing a product or service can be earmarked and spent on a particular social or environmental cause (OECD, 2008). Whereas this can increase the political acceptability of a policy, earmarking can also hamper governmental flexibility in spending the generated funds (Santos et al., 2010a). In 2015, the WHO found that about 30 countries worldwide earmarked (part of) their excise tax revenues for activities promoting national health and tobacco control (WHO, 2015). Alternatively, the income can be used as "lump-sum subsidies to counteract the regressive impacts of the policy" (Santos et al.,

2010a, p.28). This means that states could, for example, “substitute income related taxes with taxes on natural resources and energy” (Mont & Dalhammar, 2005, p.9).

Coming to another advantage of taxes over regulations, the OECD finds that taxes can generally be more cost-effective, as they require less intensive monitoring over their actual enforcement. In addition, taxes allow for more flexibility for firms and households to adapt their behavior (OECD, 2008).

However, being faced with ever higher taxes, some manufacturers “kept the lowest cigarette price down by absorbing tax increases, and cross-subsidising with the real price increase on higher price cigarettes” (Britton & Bogdanovicia, 2013, p.1591) in the past. That means that the industry even profits from tobacco taxes, as their implementation disguises higher before-tax package prices. In order to overcome this dilemma, Gultekin-Karakas (2016) suggests increasing the “tax burden on cigarette companies […] via direct price controls on before-tax retail prices (p.788).

COMMUNICATION-BASED INSTRUMENTS

Consumers can also be addressed by means of *communication*- or information-based policy tools. Whether through product labels, television campaigns or prevention programs in schools, state actors can educate consumers about the implications of a certain behavior, e.g. regarding their health and the environment. In contrast to financial incentives, communication-based instruments are more widely employed by governments, as they are “less contentious, cheaper and easier to introduce” (Röös et al., 2014, p.154).

Examples of implemented communication-based policy instruments from tobacco control include: nation-wide public service counter-advertising in the form of televised announcements in the United States in the 1960s that informed about the negative health effects of tobacco consumption, and the EU Tobacco Products Directive (2014/40/EU) that obliges producers to print (graphic) health warnings on the packaging.

Informational measures are especially important if they address the barriers to behavioral change. In the case of governmental action around climate change, an initial shared understanding of the problem at hand and of the necessity of a change in behavior has been found to be crucial for the functioning of any other (subsequent) intervention (Röös et al., 2014; Santos et al., 2010b). The same has been found to be true with policy initiatives addressing tobacco consumption: “Without appropriate information, it is difficult to form the popular consensus necessary to create and enforce more restrictive policies” (Cummings, 2002, p.7356).

Nevertheless, there are a number of shortcomings of information-based instruments. First and foremost, awareness-raising measures depend on the voluntary reaction of the

consumer (Scholl et al., 2010). Consumers, however, tend to doubt that their contribution has a significant impact and thus perceive their individual change in behavior as rather unimportant (Zaccaï, 2008). Moreover, consumers are often left in an environment that renders it difficult to overcome existing barriers towards sustainable consumption (Scholl et al., 2010).

In terms of the reasoning behind an envisioned change in civic behavior, it has been found that "environmental problems caused by consumption habits do not seem to be perceived as very important compared to other topics" (Zaccaï, 2008, p.61). Others agree that a combination of ecological effects with other benefits improves an instrument's success (e.g. Wellesley et al., 2015). People are more motivated to act in a certain way if thereby realizing a "visible positive effect 'close to home'" (Wolff et al., in press, p.13), for instance in terms of their personal health.

In addition, Santos et al. (2010b) recommend tailoring potential marketing measures towards a specific audience, e.g. in the case of promoting an alternative means of transportation "towards those segments in the population 'with the greatest potential to increase their frequency of use'" (Santos et al., 2010b, p.79) as a way to stimulate uptake.

PROCEDURAL-VOLUNTARY INSTRUMENTS

Procedural-voluntary policies target the wider infrastructure in which consumers and/or producers act. Looking at consumer policy in a wider sense, an example could be the provision of a voluntary take-back scheme for certain products to enhance re-use and recycling as well adhering to self-imposed sustainability standards throughout the supply chain.

These instruments were and are generally not so much used in the case of tobacco control, where regulatory, economic and communication-based instruments clearly dominate. Nevertheless, faced with increasing public pressure to restrict tobacco manufacturers' advertising activities, the US-American industry came together and adopted a voluntary code of conduct in 1964. The self-regulatory convention addresses issues such as the distribution of free samples and promotional material as well as advertising appealing to youth (Cummings, 2002).

NUDGE INSTRUMENTS

*Nudge*s can be defined as "purposeful changes in the choice architecture that influence people's behaviour by making changes in the environment that guide and enable individuals to make choices almost automatically" (Lehner et al., 2016, p.167). Nudge instruments are thus tools which aim at adjusting the buying environment in such a way that sustainable consumption choices are made almost automatically. Examples include simple and

straightforward information on packaging, a certain product placement in stores, changing the default option and alluding to social norms. Notably, "nudges do not try to change one's value system or increase information provision; instead they focus on enabling behaviours and private decisions that are beneficial for society" (ibid., p.168).

In the case of tobacco control, (graphic) health warnings on packaging can be listed again as one example. But also the visual display bans in British supermarkets taking away one of the last marketing opportunities for producers and retail can be considered as a nudge. Having entered into force in 2012, the measure is supposed to keep tobacco out of sight and mind, especially of young customers (Boseley, 2012).

In the past, it has become evident that especially food consumption is prone to nudging because of eating being an inherently habitual and unreflective process. Possible measures include the use of signifiers (e.g. a carbon label) on products as well as a changed visibility of and access to certain foods in retail and hospitality. Moreover, it appears that nudges are more effective with people who already have a positive attitude towards a particular behavior. In order to stimulate uptake, it thus helps to first provide information and education to convince individuals of adopting the desired behavior (Lehner et al., 2015).

What becomes evident from the above description is the fact that globally, tobacco control employs a policy mix in order to discourage smoking. The need for the used combination of different types of policy instruments is summarized by West (2007) as follows:

> *"Smoking prevalence will be high in a society where cigarette smoking is regarded as normal or attractive, cigarettes are easy to get hold of, smoking is permitted in most places, the cost of smoking is not prohibitive, there is relatively little active concern among young and middle-aged people about reaching old age and there are few salient reminders about the adverse effects of smoking."* (West, 2007, p.147)

9.2 VARIABLES INFLUENCING POLICY INSTRUMENTS' EFFECTIVENESS

Once a policy intervention is implemented, its effectiveness in bringing about the envisioned outcome (i.e. the desired change in consumption behavior) is dependent on a couple of variables that go beyond the sheer type of instrument(s) chosen. These include aspects, such as the "instrument ambitiousness, the joint targeting of consumer behavior and framework conditions, the accommodation of consumer needs, the market context, policy interaction [synergetic vs. antagonistic], and stakeholder involvement" (Wolff et al., in press, p.2).

In addition, more generic drivers and barriers, as the devotion of political support and sufficient financial resources for the instrument's implementation and monitoring can play a role. Also, the level of transparent political communication towards the consumer over the

necessity and functioning of a specific measure is crucial in order to create consent and awareness.

No matter what policy option governments employ, it appears essential that consumers are (made) aware of the consequences of their actions and share an understanding of why a change in their current behavior is necessary (Wellesley et al., 2015; Santos et al., 2010b; Zaccaï, 2008). The consumption of goods and services often represents a deeply rooted social phenomenon and is not easily alterable. In terms of policy design it is thus important to fully understand the various reasons for why people use their cars, smoke, eat meat or show any other type of ecologically or socially harmful behavior (Scholl et al., 2010). These could be amongst others instrumental, symbolic and/or affective functions of a specific product or service. Policymakers should attempt to address these motives simultaneously (Santos et al., 2010b).

9.3 TRANSFERABILITY OF POLICY INSTRUMENTS EMPLOYED IN TOBACCO CONTROL TO THE CASE OF ANIMAL PRODUCTS

After having presented the different types of policy instruments available as well as examples of how they are employed in the case of tobacco control, the question arises to what extent these insights can be transferred to a policy mix addressing meat consumption.

Above all, it became evident that the success of tobacco control lies in the combination of regulatory, communication-based and economic measures in form of a policy mix.

Also with animal products, it can be assumed that informing consumers about their actions' negative impacts alone will not do the trick, as "knowledge does not always change attitude, and attitude does not always change behaviour" (Santos et al., 2010b, p.77). Moreover, there is a "broad consensus […] that personal values, situational contexts, infrastructural deficits and financial incentives play a more important role than knowledge, affectedness and environmental attitudes" (Brand, 1997 in Zaccaï, 2008, p.61).

Similarly, economic incentives will only lead to a change in consumption patterns if accompanied by an earlier or simultaneous change in habits and norms (Scholl et al., 2010). Coming back to the case of tobacco, the positive effect of higher taxes on cigarettes, widely imposed and continuously raised since the 1960s, has been clearly supported by the growing awareness of the negative health impacts related to smoking. Successfully brought onto the public agenda by both academia and politics, a radical shift in mindset has occurred over the last decades. Today, it is common knowledge that smoking is unhealthy and lighting a cigarette in front of children is no longer the social norm. This again, has led to a situation in which governments can impose even higher taxes or other more restrictive measures without having to fear public backlash.

A policy mix around animal products could also mean a combination of measures tackling consumption and production. While Wolff & Schönherr (2011) suggest that "changes in consumption patterns […] typically entail changes in related production systems" (p.47), this did neither hold true for the case of tobacco, nor can it be expected to hold true in the case of livestock breeding. This is because both the trade of tobacco and animal products is globally organized. When the domestic demand for tobacco products started dropping in the United States in the 1970s, the US-American industry turned to foreign markets in Asia and Africa characterized by fewer regulatory obstacles and new customer segments (Courtwright, 2005).

Similarly, as total global demand for animal products is increasing due to population growth and rising welfare in the Global South, a lower consumption in the Netherlands would supposedly lead to higher export rates at the same level of production. Since this would not imply any improvements in terms of environmental costs (the desired impact of a policy mix around a 'meat tax'), such a situation would need to be prevented, for instance by means of stricter regulations on the production.

And here lies a significant difference between tobacco and animal products. Whereas with tobacco, targeting consumption in the first place is reasonable, because societal externalities directly stem from smoking, the negative impacts related to animal products occur during production.

Another difference can be observed with regards to the presence of both tobacco and animal products in consumer goods. It is important to note that there is only a limited amount of commodities made of or containing tobacco, whereas ingredients of animal origin are present throughout many different product categories and industries, which makes the challenge of eliminating them more complex.

9.4 CURRENT CONSIDERATIONS OF GOVERNMENTAL ACTION REGARDING THE CONSUMPTION OF ANIMAL PRODUCTS

The following section presents existing ideas on a policy mix addressing the consumption of animal products as found in recent literature. As briefly touched upon in the introduction, the topic area of reducing meat consumption in relation to the ecological impacts of livestock is rather new.

Traditionally, governments only play a weak role at the demand side, unless there is "need to respond to acute threats to the life and health of citizens" (Reisch et al., 2013, p.16). However, looking at livestock production, technical measures undertaken in the production processes so far did not significantly "reduce the [sector's] inherently GHG-intensive items, because they could not change the demand and supply of the food industry" (Xu et al., 2015,

p.1278). Plus, efficiency measures directed at the supply are actually expected to be insufficient to promote a decrease in emissions. This is mainly due to a steady rise in total global demand and thereby production (Kiff et al., 2016). Therefore, the authors conclude that only a (simultaneous) change in consumption patterns can drastically reduce emissions related to food production.

So far, most governments have (if at all) implemented 'soft', information-based policy tools, which are more easily received by the public, but have not shown to be effective in leading to a significant change in behavior (Zaccaï, 2008). Policymakers still too often shy away from measures that (greatly) interfere with citizens' private sphere, the democratic principle of free consumer choice, or existing trade objectives (e.g. Kiff et al., 2016; Reisch et al., 2013; Scholl et al., 2010; Stevens, 2010; Mont & Dalhammar, 2005). As an example, the Swedish government had to withdraw its consumer advice to purchase local foods in 2011, as it "infringed core EU commitment to the single market" (Lang & Barling, 2012, p.4). Governments are thus not only faced with a powerful retail sector, but they must also fear that their (potential) actions conflict with European law (Reisch et al., 2013). Being moreover concerned about risking public backlash, governments tend to stay inactive – thereby signaling that the issue is of little concern at most (Wellesley et al., 2015).

However, the British *Royal Institute of International Affairs* ascribes a central role to national governments in influencing citizens' diets. In its extensive research on future meat intake and climate change, the think tank developed pathways to designing policy interventions effective in reducing consumption. Wellesley et al. (2015) find that governments are the "only actors with the necessary resources and capacities to redirect diets at scale towards [being] more sustainable" (p.2). Due to an existing lack of public awareness of the negative impacts stemming from livestock, it appears essential for governments to convey a clear and simple though trustworthy message to consumers in the first place. Governments are advised to co-operate with media and academia as well as surprising communicators such as celebrities or big retailers to spread this information. This can bolster any subsequent and potentially more stringent interventions.

Moreover, the authors suggest expanding the availability and improving the promotion of alternative foods as well as exerting influence in public institutions (e.g. school canteens). In addition, the scholars find that altering prices by restructuring financial incentives (e.g. subsidization of plant-based foods, taxes on animal products) can be expected to be very effective. Finally, governments are supposed to support research and innovation with regards to the development of vegan alternatives (Wellesley et al., 2015).

Other scholars (e.g. Reisch et al., 2013; Vinnari & Tapio, 2012; Dagevos & Voordouw, 2013) agree that in the case of meat consumption, a comprehensive approach combining multiple policy instruments (equal to those applied in the case of tobacco) is required to trigger a

sustainable change in behavior. All of them grant a central role to the government as main initiator of such an endeavor.

Revell (2015) points further out that a reduction in the supply of animal products in the Global North (as a potential consequence of an imposed 'meat tax') will lead to less carbon efficient regions in the Global South producing more livestock to meet demand there. As a consequence, neither total global emissions will be reduced, nor can "the long-term survival of the fragile environments that many developed regions seek to preserve in the face of global warming" (Revell, 2015, p.9) be ensured. Therefore, he recommends combining taxation of animal products with innovation in higher efficiency of production.

10. Results I.II: Political pathways in the case of tobacco control

After having studied the various policy instruments applied within global tobacco control, this chapter presents the second part of the literature review, namely the policy implementation pathway leading up to the current level of governmental intervention in tobacco consumption. Due to the fact that the history of the US-American tobacco control is reasonably well documented, the United States are used as an example case.

10.1 TOBACCO CONTROL IN THE UNITED STATES

INITIAL DENIAL

Early concerns voiced by doctors and researchers in the first half of the 20th century about the detected link between smoking and lung cancer were initially not acted upon by government, but rather fought by the industry. The tobacco manufacturers persistently tried to undermine the increasing evidence and to spread doubt among consumers. In 1953, various industry representatives founded the Tobacco Industry Research Committee. Amongst others, this organization funded studies, which pointed to other causes (e.g. industrial pollutants) of lung cancer. Producers also introduced alternative products, such as filter-tipped brands in order to counter smokers' fears (Courtwright, 2005; Cummings, 2002). Moreover, to make matters worse, the tobacco industry had traditionally been seen by government in a positive light, namely as a great economic force providing state income and employment to many. This had equally hindered earlier governmental intervention in consumption and/or production (Albæk et al., 2007).

THE SURGEON GENERAL'S REPORT OF 1964

However, in 1961, the American Heart Association, the American Cancer Organization and others, until that point unable to pool resources and take common action, finally came together. The various organizations sent a common letter to President Kennedy urging him to form a commission and to eventually address the issue. Consequently, the landmark *Surgeon General's Report on Smoking and Health* was released in 1964 as the result of a major paper review, officially linking lung cancer to smoking. Due to the report having been immediately picked up by mass media, the public image of tobacco consumption started to change rapidly.

POLICY ACTION

The release shortly led to first bans on advertisement as well as labels with health warnings on packaging. Moreover, the Fairness Doctrine was applied to cigarette advertising, meaning that time on air had to be provided to anti-smoking public service announcements in order to counteract manufacturers' commercials.

Throughout the following years, the employed policy instruments got increasingly stringent (e.g. bans on television and radio commercials in 1971, first smoking restrictions in restaurants in 1974) and an international community united in the goal to combat tobacco consumption emerged and strengthened. In 1967, the first World Conference on Tobacco & Health was held in New York City. Consumption rates continuously declined (RWJF, n.d.; Courtwright, 2005; Cummings, 2002).

ENVIRONMENTAL TOBACCO SMOKE

Another peak in attention to the harmful impacts of tobacco was reached in the 1980s, when awareness of the negative health implications for non-smokers through environmental tobacco or second-hand smoke increased (Albæk et al., 2007). With "[p]otential harm to innocent third parties […] [being] the single most powerful argument for regulating […] psychoactive products" (Courtwright, 2005, p.427), the regulatory and economic policy instruments in place were tightened again. Next to a sharp increase in excise taxes, public smoking bans were expanded (e.g. on domestic flights, at workplaces etc.). Moreover, with the publication of the meanwhile twentieth Surgeon General's report in 1988, nicotine got officially recognized as highly addictive (RWFJ, n.d.). At the same time, the US-American industry started penetrating foreign markets to secure its income (Courtwright, 2005).

LITIGATION

In the 1990s, the discussion around tobacco consumption changed once more when multiple state governments (as well as the federal government) filed suits against the industry asking tobacco companies to recover medical costs.

> *"The argument was based on the premise that non-smoking taxpayers should not contribute tax money to Medicaid – in order [to] pay for sick smokers' treatment – while the industry simply walked away with the profits."* (Albæk et al., 2007, p.10)

Consequently, public attention shifted from exclusively health issues to a redefined and expanded political and legal conflict between the industry and taxpayers.

INTERNATIONAL COMMITMENT

In view of growing total tobacco consumption worldwide, the WHO announced a public health emergency in 1996. In 1999, negotiations on a Framework Convention on Tobacco Control (FCTC) began – the first international health treaty aiming at putting an end to the global tobacco epidemic. It entered into force in 2005 and requires all 168 signees to implement both price and non-price measures to discourage consumption (Clancy, 2009; FCTC, 2005; Courtwright, 2005).

The most recent major development in US-American tobacco control was the amendment of the *Family Smoking Prevention & Tobacco Control Act* in 2009. The law provides the Food and Drug Administration as sole authority with the right to regulate tobacco products in terms of content, marketing and sales in the United States (NIH, 2017).

10.2 HISTORICAL BACK-CAST

From the above literature review on the political pathway of tobacco control in the United States, the following graph (figure 3) depicting an historical back-cast has been drafted. This back-cast has been used throughout the interviews with relevant stakeholders to both provide the interviewees with an example case and to collect their reaction to the comparison at hand.

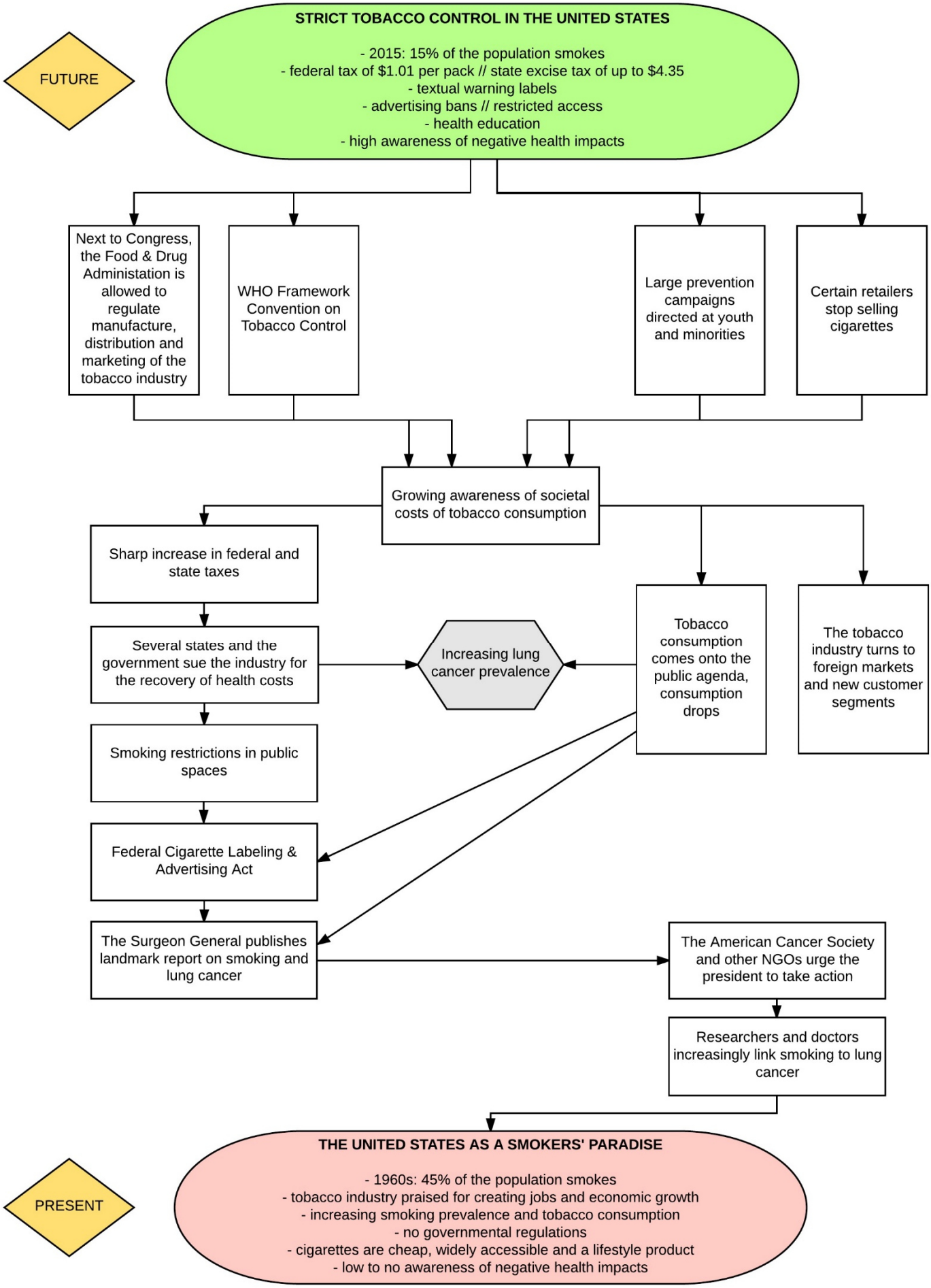

Figure 3. Back-cast of the history of US-American tobacco control (own figure)

10.3 LESSONS LEARNED REGARDING AGENDA-SETTING AND POLICY IMPLEMENTATION

Looking back at how the issue of tobacco consumption got onto the public and political agenda in the United States, several aspects stand out.

Firstly, stringent political action was undertaken decades after scientific consensus on the link between smoking and lung cancer had started to be formed at the beginning of the 20th century. Due to this lack of precautionary action (being hindered by the industry's lobbying power), "the incidence of smoking-caused cancers began to decline in the late 1980s" (Cummings, 2002, p.7350) only.

Secondly, it appears important that there was a persistent and coordinated anti-lobby embodied by NGOs, health organizations and research who directed a clear message and demand at the government. After having struggled to cooperate in the first half of the century, they were most successful in influencing the government once they had pulled together in the 1960s.

Moreover, long-term governmental commitment to fight tobacco consumption and the resulting negative health impacts was necessary to achieve the observed changes in behavior and mindset. With imposing ever more stringent regulations, continuously adjusting tax levels and opposing the industry's fierce campaigning up until today, the US-American government has succeeded in drastically curbing consumption. However, even now it remains crucial to keep track with the newest developments and strategies of the industry and to react to the exploitation of existing loopholes. Gultekin-Karakas (2016) finds for the case of Turkey:

> *"The tobacco control community generally lags behind the innovative strategies developed by the industry. For example, by also taking the e-cigarette business under its control and promoting e-cigarettes, the industry weakens tobacco control by both attracting new smokers and stimulating cigarette consumption along with non-smoked forms of nicotine."* (Gultekin-Karakas, 2016, p.787)

Fourthly, it can be seen that this kind of policy approach has been facilitated by a growing (scientific) understanding of the dangers of (second-hand) smoking as well as nicotine addiction. Disseminating and advertising this kind of information to the public led to the consensus that governmental action was appropriate and required, especially in order to protect innocent third parties (Schroeder & Koh, 2014).

Another factor that contributed to the public change in attitude towards tobacco consumption was the formation of an international community. With the implementation of the FCTC, setting an end to smoking became a global goal.

Lastly, looking at the industry itself it becomes apparent that there was almost no voluntary self-regulation put in place, because the US-American manufacturers had the freedom to simply penetrate new foreign markets once domestic consumption declined. As the production of cigarettes was still possible (and remains out of focus of tobacco control until today), manufacturers simply started to export (more). This is facilitated by the WHO's prevailing line of thinking that demand-side measures are sufficient to discourage consumption. Gultekin-Karakas (2016), however, blames this approach for not having any impact on production. Without simultaneously interfering in manufacture and trade, tobacco production will continue to be a profitable business, undermining policy action and trying to attract new customers. The author therefore suggests discouraging production by e.g. new bans on sales as well as gradual restrictions on "products, production, packaging and additives" (Gultekin-Karakas, 2016, p.788).

11. Results II: The design of a 'meat tax' and political pathways in the Netherlands

For the empirical part of the research, 17 interviews with 19 interviewees in total have been conducted (two interviews were done with two people at once). The interviews were meant to enable the extraction of different perspectives and opinions on the policy design and political pathways of a future 'meat tax' for the Netherlands. This section presents, analyzes and clusters the interviewees' ideas which have emerged throughout the visioning and back-casting exercises.

11.1 THE EXERCISE

VISIONING

For most of the interviewees it was the first time to participate in such an exercise. The first part, the so called visioning, went usually very smoothly. All stakeholders immediately developed various ideas on how their ideal future Netherlands would look like. Being asked to imagine their ideal future Netherlands *with the only precondition that the consumption of animal products would be lower than today*, they mostly referred to aspects around diets and agriculture, but also around societal values, education and consumer awareness.

When requesting them next to incorporate some sort of 'meat tax' in their vision, the process became slightly more difficult sometimes, as multiple stakeholders directly rejected the concept. Nevertheless, the resulting discussions on what the different interviewees thought about this policy instrument and how they would potentially implement it, were insightful, as they often revealed other (drastic) changes that the respective stakeholders would like to see.

BACK-CASTING

Coming to the back-casting, one could observe that most stakeholders had difficulties to both engage in backwards thinking and to plan a consistent sequence of steps that would precede their vision (e.g. the implementation of a 'meat tax'). Moreover, most participants tended at least initially towards sticking to the problem at hand instead of moving beyond the present situation, consequently rather thinking in barriers than in opportunities.

In general, most back-casts contained only partial pathways or a few elements that the interviewees thought would need to take place at some moment in time as opposed to them drafting a clear, elaborated sequence of steps. Nevertheless, all interviewees were eventually able to identify certain drivers and barriers that would lie between the future they drafted and the present. Certain groups of stakeholders, namely civil servants, those

affiliated with (governmental) research and to some extent lobbyists who are interacting with government, appeared to be much quicker and more structured in their thinking about an abstract future and planning of long-term action. On the contrary, especially those associated with the industry and retail displayed more short-term thinking with regards to potential change, tending towards wanting to prevail the status quo.

HISTORICAL BACK-CAST

Having used the historical back-cast of tobacco control in the United States (in the form of a one-page graph) as an orientation and best practice example throughout the interviews led to a few more noteworthy observations. First of all, a couple of interviewees had mentioned the case of tobacco control by themselves already at an early stage of the interview without having seen the historical back-cast before. They reported that this was because they felt reminded of the popular example of stringent and successful governmental intervention in consumption in the case of tobacco control when being confronted with the idea of tackling meat and dairy intake in the future.

Secondly, the comparison with tobacco stimulated some interviewees to highlight the differences between the two product categories, whereas others thought that the two examples were actually quite similar. A difference underlined by multiple stakeholders was the fact that while a lower consumption and production of animal products would already lead to ecological and health improvements, tobacco is per definition carcinogenic, regardless of the amount consumed.

What various interviewees found especially effective with regards to tobacco control and thought could be equally effective in the case of meat and dairy consumption was the banning of smoking in public space, combined with continuous educational measures. The resulting change in perception (smoking losing its status as common practice) was regarded as an important step towards a significant decrease in tobacco consumption.

A few interviewees also pointed to the long time span of about 50 years necessary to achieve today's relatively low smoking prevalence – thereby implying that it might take a similar amount of time before a considerable change in consumption habits regarding meat and dairy can be realized. However, two interviewees also stated that even today, smoking prevalence is far above zero – despite long-term aggressive policy intervention and an overall change in mindset, showing how complex and difficult changing consumer habits can be.

Those interviewees who were given the historical back-cast before the exercise tended to adopt certain elements in their pathway, such as

- a change in mindset that eating meat was no longer the norm,
- high taxes on animal products, and
- governmental intervention getting more stringent over time.

Some interviewees kept coming back to the graph in order to find inspiration for the design of their own back-cast.

Those who were given the historical back-cast at the end of the interview did rarely add any elements to their own scheme, but rather commented more generally on the comparison between the two product groups.

In the following, a vision (in green) and back-cast (in red) as sketched in one of the interviews are presented as an example. Concrete ideas on the design of a 'meat tax' are depicted in blue (figure 4).

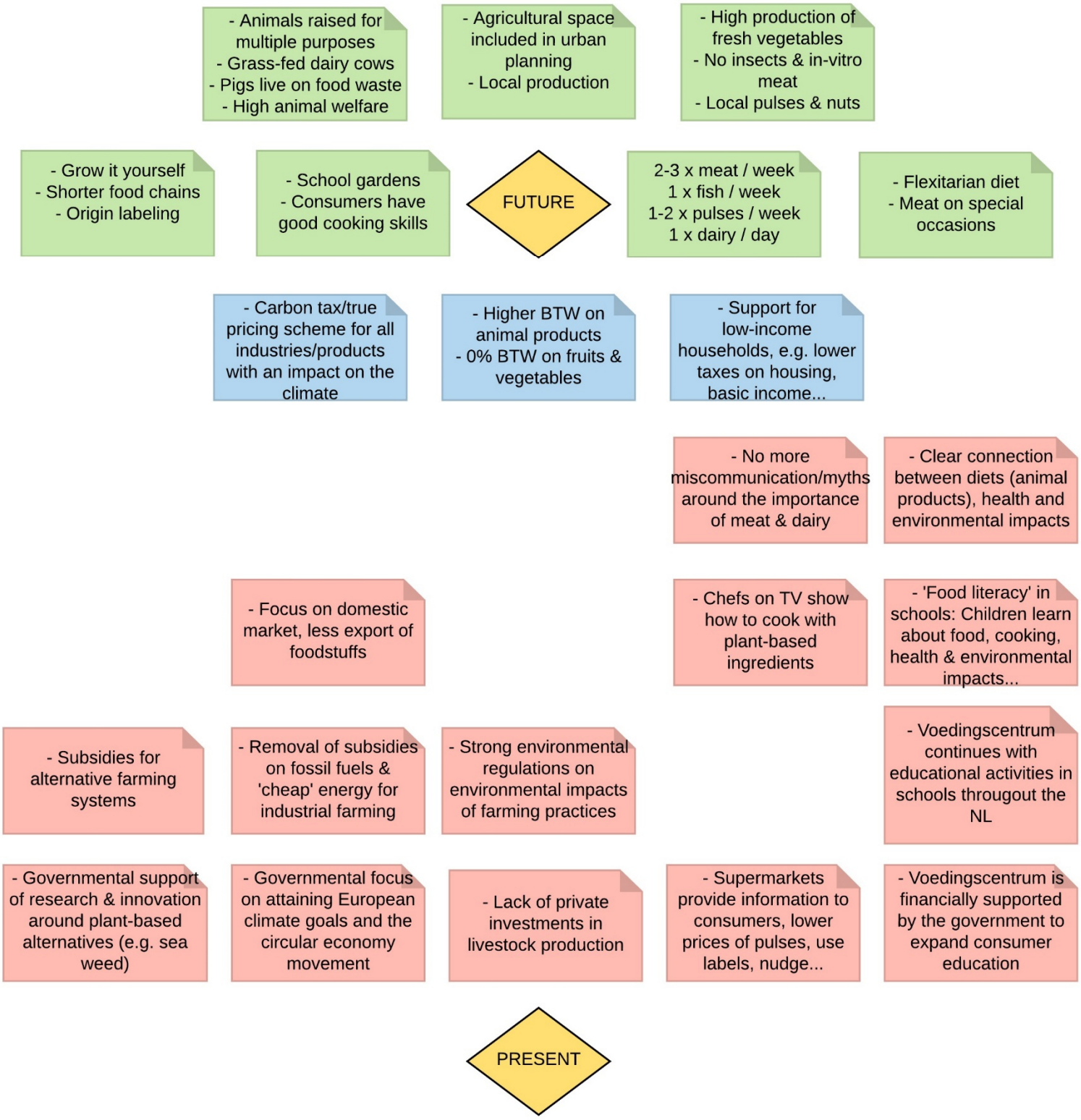

Figure 4. Example vision and back-cast taken from one interview (own figure)

11.2 INTERVIEW ANALYSIS

Having coded the interview transcripts in the software *NVIVO* (see Appendix 3 for coding structure), five different clusters of similar visions and corresponding back-cast elements were identified. This does not mean that every stakeholder described only one of the five different futures (and related pathways), but most of them actually raised elements that fit under multiple visions and back-casts. Grouping the data from various interviews under five main themes allowed for preserving the participants' anonymity while still capturing the details of their statements. Moreover, this approach to the analysis helped focusing on both similarities (i.e. common ground) and differences (i.e. potential conflicts) in the interviewees' lines of thought.

The five vision themes are:

- High consumption of alternative protein sources
- High consumer awareness and knowledge (e.g. of food production and preparation)
- Alternative agricultural system
- The Netherlands as international leader in sustainable agriculture
- Implementation of a 'meat tax' or true pricing scheme

In the next section, each of these futures and their sketched pathways are described and visualized in a graph. In addition, each cluster is analyzed based on the analytical framework (i.e. with regards to the interviewees' ideas on concrete policy instruments and the policymaking processes with a focus on the agenda-setting phase) as well as against the background of wider governance of transformations.

11.3 HIGH CONSUMPTION OF ALTERNATIVE PROTEIN SOURCES

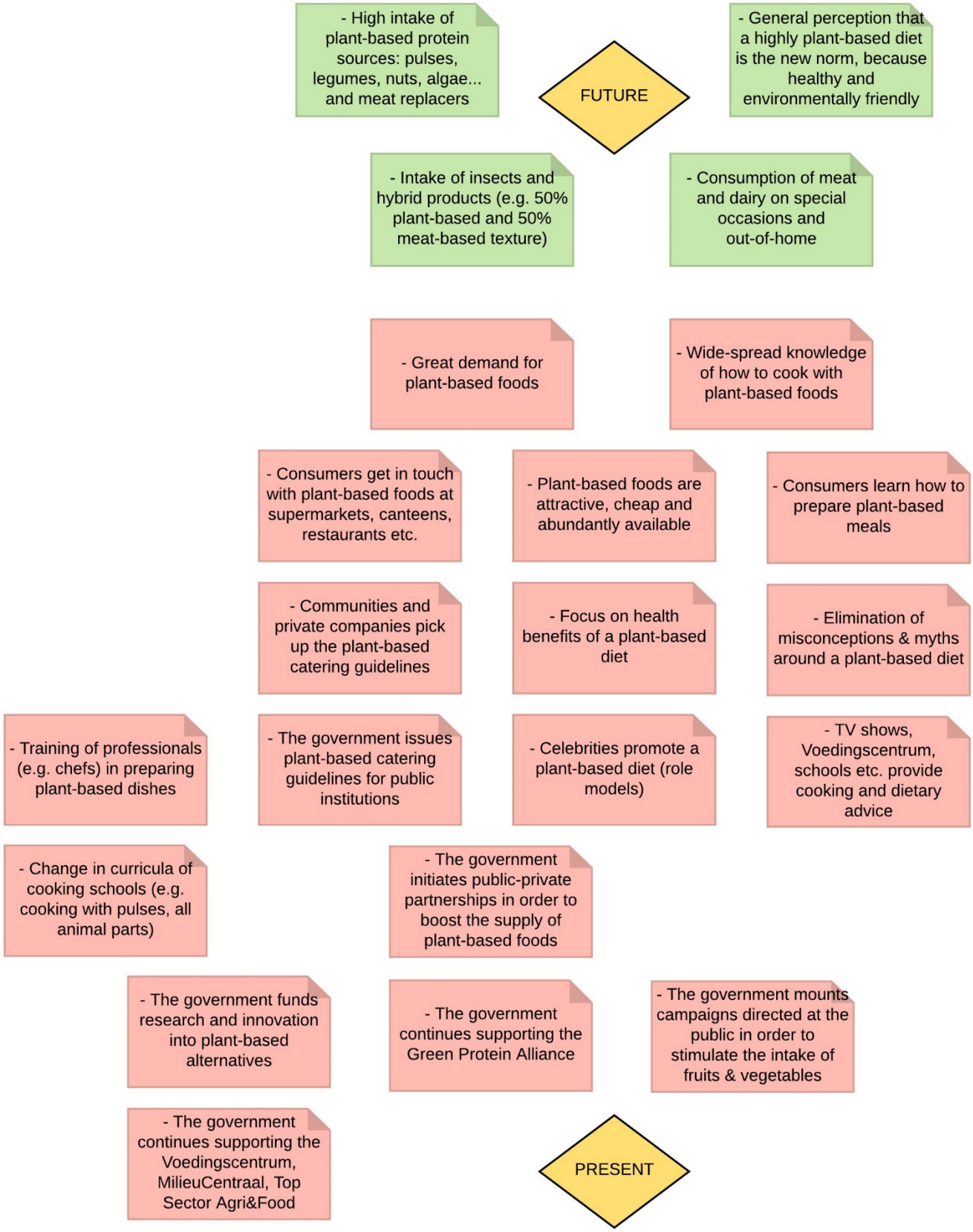

Figure 5. Vision and back-cast of ‚high consumption of alternative protein sources' (own figure)

VISION

Faced with the question of what they perceive as desirable in terms of future food consumption and production, all interviewees raised the point of a higher intake (and production) of protein sources other than meat and dairy (figure 5). The listed protein sources were mainly plant-based: pulses and legumes, vegan meat replacers (e.g. soy-based), tofu, algae and nuts, but also insects and hybrid products (consisting partially of actual meat and partially of plant-based texture). The change in food patterns would go hand in hand with the perception that a highly plant-based (vegetarian or flexitarian) diet is the new norm because it is healthy and environmentally friendly, whereas meat and dairy would only be consumed at special occasions or out of home, for instance in restaurants. Most interviewees were rather skeptical about the idea of a standardized production and consumption of so called in-vitro meat for different reasons. For example, they were concerned that consumers would not accept the artificially produced meat and think that it was disgusting. Moreover, they were unsure about the scientific progress needed to scale up future production. Finally, cultured meat would not be completely plant-based, since at least the current way of fabrication still requires animal cells.

BACK-CAST

An important step that precedes this vision is a situation in which people actually purchase plant-based proteins once they are on the shopping floor, they are able to cook with them and plant-based foods are attractive, cheap and abundantly available – in short, they form a crucial part of everyone's life.

Prior to that, consumers would need to get more and more in touch with these kinds of products, be it at the supermarket, at the canteen at work or school, or when eating out. There, again, vegan alternatives have to be so affordable, tasty and easily accessible that people are eager to try them.

In order to foster the knowledge of how to prepare nutritious and appealing meals with plant-based foods, both professionals (e.g. cooks, catering staff) and consumers need to be trained and informed. For professionals, that requires a change in the curriculum which should include, for instance, cooking with pulses or preparing all parts of an animal. For consumers, this information should be made available both in schools (directed at children and youth) and by institutions, such as the Voedingscentrum, which issues objective dietary advice. However, this knowledge could also be provided in a more entertaining and engaging way, for example in cooking shows on television or by celebrities publicly promoting a vegan lifestyle. In any case, the focus should lie with the health, and not necessarily with the ecological benefits of a plant-based diet, as this is a personal aspect that more people can relate to and care about. This kind of education should also address persisting misperceptions around veganism.

Looking at the role of government, multiple interviewees raised the point of giving a good example, for instance by means of public procurement and issuing regulations for catering in state institutions and councils, which might then be picked up by private companies later on, too. Moreover, the government should fund research aimed at improving the quality and diversity of vegan food choices. For instance, the development of direct meat replacements (i.e. plant-based foodstuffs that have the same function and/or texture as meat) was important to some interviewees in order for consumers to adapt more easily. In the frame of public-private partnerships, the government could cooperate with food producers and retailers to develop and raise the supply of plant-based foods. As a concrete example, by collaborating with industry organizations, the government could initiate pilots with snack suppliers in train stations which would give away free vegan samples next to their usual offer.

In terms of communication, the government should also mount campaigns directed at different customer segments (e.g. youth, parents) in order to promote the intake of fruits and vegetables. Hereby, a couple of interviewees underlined the importance of a positive message ("Eat more fruits and vegetables") instead of a negative one ("Don't eat meat and dairy"), as the average consumer does not want to feel restricted in what to eat, especially not by government.

Closer to the present, various initiatives already being undertaken by government, such as funding the MilieuCentraal (providing information to the public), RIVM (conducting research for the government), the Topsector Agri&Food (conducting research and running pilots together with the industry) and the Voedingscentrum (providing dietary advice to the public) should be further supported and/or could be intensified. Another promising initiative is the so called *Green Protein Alliance*, which has been launched at the end of 2016 and runs until 2025. The Green Protein Alliance is a network of various food suppliers and retailers, supported by government, which aims at stimulating consumer demand for plant-based proteins. The network wants to achieve a protein ration of 50:50 (i.e. 50% plant-based, 50% animal-based) and thus raise the current intake of vegan proteins by 10% (the current ratio being 40:60), for instance by improving product development, education and marketing (Green Protein Alliance, 2017).

POLICY INSTRUMENTS

The first cluster contains a variety of policy instruments that are supposed to foster the consumption of plant-based foods. Whereas the interviewees regarded information- and education-based measures (e.g. public campaigns) as very important in the first place, economic incentives (e.g. price reductions on vegan products) and nudges (e.g. attractive plant-based meals in canteens) were suggested to be effective in the actual purchasing environment. Finally, governmental regulations around public procurement would complement this policy mix.

POLICYMAKING AND AGENDA-SETTING

Analyzing the above back-cast through the lens of the Multiple Streams Framework does not appear straightforward, as this cluster does not address one specific policy intervention, neither a particular stream, entrepreneur, or potential window. However, the mentioned focus on health instead of ecological externalities in order to trigger public attention and interest could be classified into the problem stream. If, for instance, the consumption of animal products is widely considered unhealthy at some point in time, the government becomes more likely to act and respond to the change in national mood. Moreover, the establishment of the Green Protein Alliance can be seen as the output of a policy community of businesses and policymakers, who opted for an intervention that was both easily feasible within the given infrastructure and easily acceptable by the concerned stakeholders and the public, as it does not interfere with the existing market system and principles despite promoting a change in diet. This is in line with the interviewees' proposition that the government is currently reluctant to take any other than incremental and mainly information-based measures.

GOVERNANCE OF TRANSFORMATIONS

The first cluster shows indeed that it can be challenging to deliberately plan and implement a societal transformation, because it concerns various actors and realms. In this cluster, the interviewees mainly pointed to the necessity of parallel developments in retail, hospitality, education, research and public procurement. Furthermore, some interviewees suggested that under a long-term commitment of different stakeholders, e.g. in the form of public-private partnerships (such as the Green Protein Alliance) or continuous governmental funding of research and public education, incremental efforts can also lead to a stepwise, rather unnoticed transformation (Patterson et al., in press; Weick, 1984). These incremental efforts could mean, for example, a boost in the supply of and demand for plant-based foods, and/or a redirection of attention to the health benefits of a vegan diet – eventually summing up and creating new path dependencies and societal momentum for a more profound transformation.

11.4 HIGH CONSUMER AWARENESS AND KNOWLEDGE

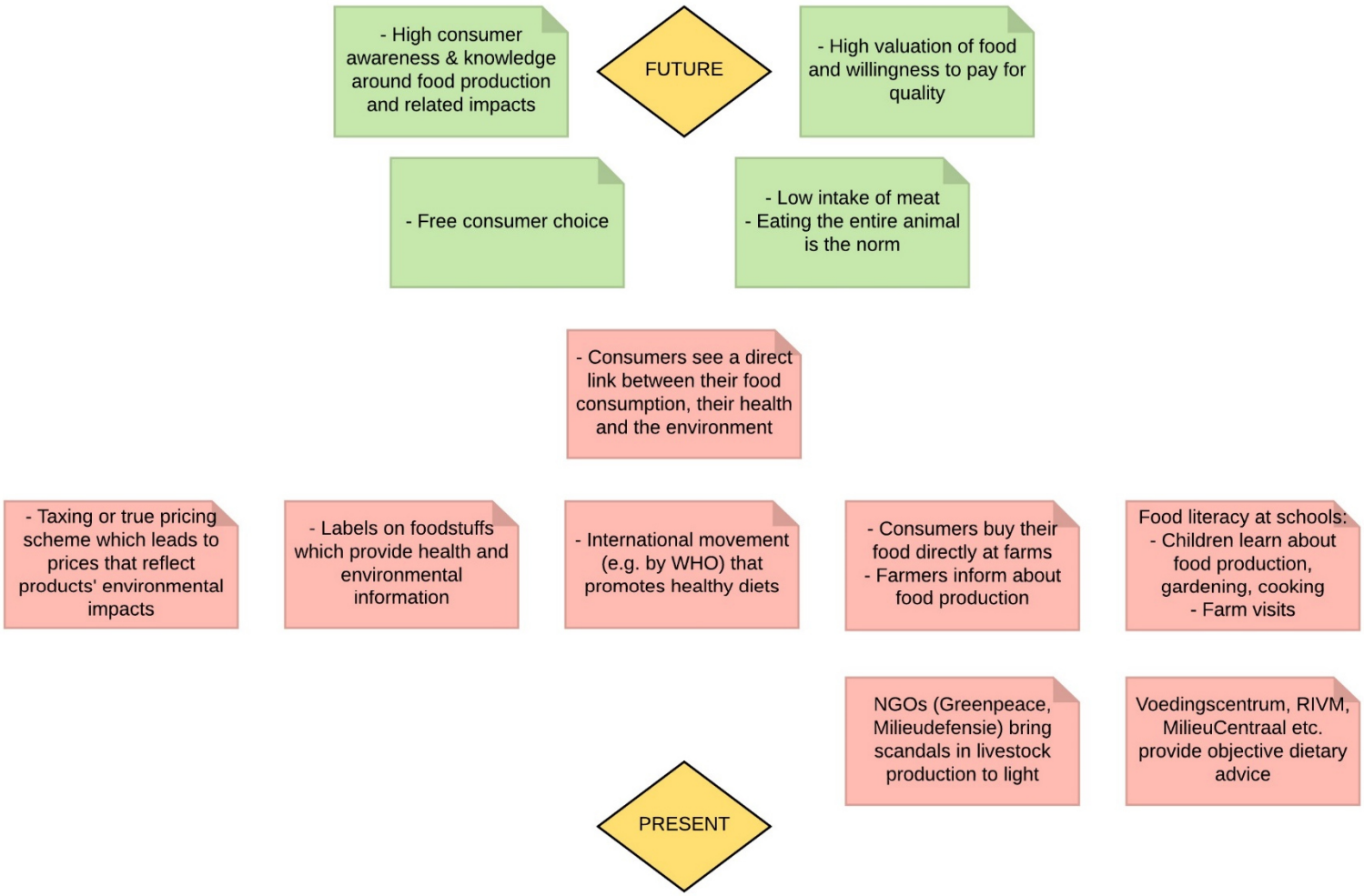

Figure 6. Vision and back-cast of ‚high consumer awareness and knowledge' (own figure)

VISION

Another theme that came up in most interviews was the desire for a higher consumer awareness of and knowledge about how food (including livestock) is being grown and produced, and what kind of (e.g. ecological) impacts the production has (figure 6). In such a future, consumers would value food a lot more. They would know what nutritious and healthy food is, how to cook and prepare it. That goes hand in hand with the willingness to pay a higher price for higher quality foodstuffs, whose production involves e.g. stricter animal welfare standards. A couple of interviewees also said that they would like to see more people being engaged in food production themselves, for instance in school gardens or urban farming. This would contribute to the feeling of being more in touch with food. In terms of animal products, a couple of stakeholders said that due to a higher valuation of meat in particular, it would only be consumed on special occasions. In addition, it should be common practice to prepare and eat the whole animal in order to reduce waste and export

of certain parts which are commonly not consumed. Finally, a free (but more informed) consumer choice is key to this vision.

BACK-CAST

The first step that precedes this vision is a situation in which every consumer sees a clear and direct link between one's food consumption, one's personal health and the environment. This can be induced by some sort of taxing or true pricing scheme which would lead to prices that reflect a product's various impacts (e.g. higher prices for carbon-intense foods such as meat, lower prices on healthy foods such as fruits and vegetables). Similarly, labels on foodstuffs that inform about the health and environmental impacts of their production and consumption could contribute to a change in understanding. Or, it could be triggered by an international movement and commitment to promote healthy and sustainable diets, for example initiated and coordinated by the WHO.

Farm sales could become another way for consumers to purchase foodstuffs and experience their production at the same time. This would require farmers to open up to the public and to allow consumers to learn about and see their practice. In addition, farmers could form collectives and jointly offer their produce to the public without needing to interact with retail.

In order to foster 'food literacy', children would need to learn about food production and consumption in schools. Cooking, gardening and farm visits should become an essential part of the curriculum.

Again, closer to the present a more intense and wider distribution of information is crucial. Institutions, such as the Voedingscentrum, RIVM and MilieuCentraal shall continue providing objective, factual material and tips around (the impacts of) nutrition. These activities need further governmental support. NGOs such as Greenpeace and Milieudefensie meanwhile play a role in bringing scandals around livestock production (e.g. regarding animal welfare) to light, thereby addressing consumer emotions and raising awareness in a different way.

POLICY INSTRUMENTS

Also in this cluster it becomes apparent that the interviewees preferred a policy mix of information-based (e.g. product labels) and economic (e.g. 'meat tax') policy tools in order to foster consumer awareness. Moreover, a greater interaction between consumers and food producers, for instance in the form of farm sales, could be considered as a procedural-voluntary instrument, as this would concern the wider supply infrastructure.

POLICYMAKING AND AGENDA-SETTING

Certain elements of this cluster can be allocated under the three streams. Firstly, in their role as lobbyists, NGOs can draw attention to certain shortcomings by publicly pointing to scandals (possibly functioning as a focusing event) and by blaming certain actors and/or practices. Thereby, NGOs can influence what is perceived as a 'problem' and what requires governmental action. According to the framework, the public perception is especially sensitive to any violation of prevailing values and principles. Therefore, it is important for NGOs to make a solid case, for instance by pointing to issues around animal welfare or human health – both commonly expected to be safeguarded by the Dutch government. Similarly, an international call for action and movement aiming at changing diets as part of global climate change mitigation can contribute to the problem stream. At the same time, interest groups can also take part in the policy community and suggest certain solutions to policymakers. By acting as a pressure group and publicly expressing opposition, NGOs can additionally contribute to the political stream.

GOVERNANCE OF TRANSFORMATIONS

This cluster fits insofar under the umbrella of a wider societal transformation as it entails a drastic change in knowledge and awareness. The vision above foresees not only a change in consumption patterns, but an entirely different valuation of food and a clear link between one's diet, health and the environment. Moreover, the aforementioned NGOs who play an important role in raising awareness in this cluster, tend to promote change from a particular stake (Patterson et al., in press), questioning the existing livestock breeding system and eating culture. They often demand radical reform. Consequently, such organizations can face difficulties in establishing a dialogue with other parties, who might feel negatively affected by and therefore contest the formers' ideas.

On the other hand, the question is to what extent NGOs are having a voice at all with interviewees pointing to their limited resources and visibility both at policymakers and in the public domain. Patterson et al. (in press) warn that inadequate representation of particular actors can represent a barrier to transformation – a concern that has also been raised throughout the interviews.

11.5 ALTERNATIVE AGRICULTURAL SYSTEM

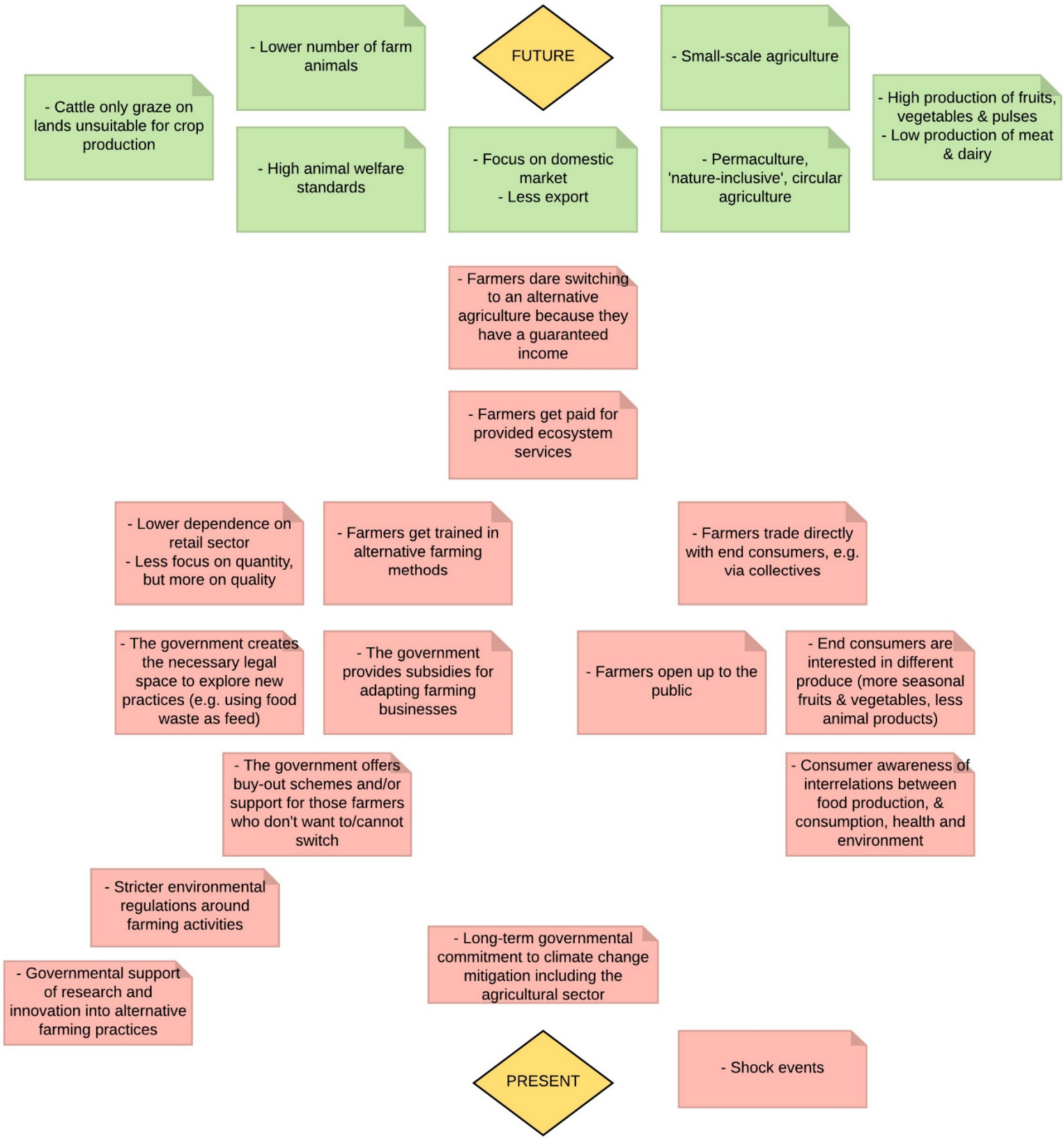

Figure 7. Vision and back-cast of ‚alternative agricultural system' (own figure)

VISION

While discussing the issue of future food consumption, all of the interviewees talked about food production and the Dutch agricultural system in particular as well (figure 7). Although their ideas about how the Dutch agricultural landscape should ideally look like differed, it became clear that most of the stakeholders would like to see quite a drastic change. Being aware of the current ecological damage caused by intense livestock production, most of the interviewees said that they would prefer a reduction in the number of farm animals as well as more small-scale agriculture. This could go hand in hand with a greater focus on the domestic market and less export of foodstuffs. Some stakeholders went even further and pledged for a more radical reform, namely the implementation of some sort of permaculture or 'nature-inclusive' agricultural system, which is more circular (e.g. food waste is used as animal feed), involves less or no import of feed and the production of seasonal fruits, vegetables and pulses. In such a system, animals form an integral part of the agriculture and are only bred and grazed on areas that are not suitable for crop production (e.g. on so called "veenweidegebieden"). High animal welfare standards was another aspect raised by many.

BACK-CAST

An essential step that lies before this kind of future concerns the Dutch farmers themselves. They would need to be trained in these kinds of alternative farming methods as well as, once having made the switch, earn enough with it to make a living. This social security is key for daring to change and could be guaranteed by paying farmers for the ecosystem services (e.g. carbon storage, biodiversity conservation) which they provide through their altered practices.

Another prerequisite for the Dutch farmers to set up a less intense production is a higher independence from the retail sector and thereby less price pressure and focus on quantity. Farmers could instead directly trade with the end-consumers, for instance by means of collectives. That requires again that they open up to the public.

The consumers would meanwhile have to have a higher willingness to pay for the kinds of products that the farms sell in such an agricultural system, i.e. less animal products, seasonal and local fruits, vegetables and pulses. This demand can be stimulated by higher consumer awareness of food production, its environmental impacts as well as healthy diets.

The role of government would lie in providing subsidies to those farmers who want to invest in adjusting their business. This extra money could be generated by reducing or eliminating current subsidies for polluting activities, such as energy generation from fossil fuels or industrial livestock farming. Similarly, banks would need to be ready to offer different and/or more flexible financial products to farmers who want to take out loans for restructuring their business. Moreover, the government would need to contribute to this development by creating the necessary legal space to adopt new practices, such as feeding food waste to

animals. At the same time, the government should also offer buy-out schemes for those farmers who do not want to or cannot change.

This would ideally be preceded by governmental support of research and pilots that explore and test the feasibility and economic viability of alternative farming methods, such as new feeding schemes, manure treatment and the growth of different crops. This is already being done, for instance by Top Sector Agri&Food, but should be extended to more areas and practices throughout the country. Hereby, best practice examples from other countries and existing small-scale farming projects in the Netherlands can be of help and inspiration.

Another stimulant for a revolution of the Dutch farming landscape (though only supported by a few of the interviewees) could be stricter environmental regulations, for example applying to animal welfare, GHG emissions of farms and slaughterhouses, imports of soy etc.

Closer to the present, most interviewees agreed that there needs to be an initial, clear commitment to a holistic, long-term and more drastic climate change mitigation strategy including the agricultural sector. This could be an important part of the Dutch plan of action to reach the goals set by the Paris Agreement and would give a feeling of security to the farmers who are investing in adapting their business. The agricultural sector could thereby also be included in the carbon trading scheme. Finally, a few stakeholders raised the idea that shock events (such as the recent legal and environmental implications of the great phosphate surplus) can help to trigger the readiness to undergo the envisioned transformation of the Dutch farming system.

POLICY INSTRUMENTS

This third cluster does not focus on (policy action tackling) consumption, but rather on the production of food, namely the Dutch agricultural system. Nevertheless, certain policy instruments were regarded as necessary in order to achieve the envisioned future. Firstly, more stringent regulations (e.g. emission laws) for farmers and the processing industry could motivate an adaptation of current, polluting practices. Secondly, a redirection of existing subsidies (thus financial incentives) was considered effective in promoting a more sustainable way of farming.

POLICYMAKING AND AGENDA-SETTING

As the two previous clusters, this vision and back-cast do not focus on one particular policy intervention. However, with regards to the potential implementation of an alternative agricultural system, one interviewee underlined the importance of shock or focusing events (e.g. an ecological disaster, such as water or soil pollution due to intensive livestock farming) that could trigger public and political attention. Such an event would occur in the problem stream and can be picked up by e.g. NGOs who act as policy entrepreneurs. In case of public

concern (and a resulting change in the national mood), policymakers are put on the spot and required to act.

GOVERNANCE OF TRANSFORMATIONS

A reform of the present, well established agricultural system as described by the interviewees can certainly be considered a transformation towards sustainability as defined by Patterson et al. (in press). As sketched above, a different kind of agriculture and food production would, for instance, bring about changes to the Dutch physical landscape, to the kind and amount of produce, and to consumers' everyday experience of purchasing and preparing (e.g. mainly seasonal) food. Such a complex endeavor however requires long-term governmental commitment and steering as well as the collaboration of different actors (e.g. farmers and communities).

11.6 THE NETHERLANDS AS INTERNATIONAL LEADER IN SUSTAINABLE AGRICULTURE

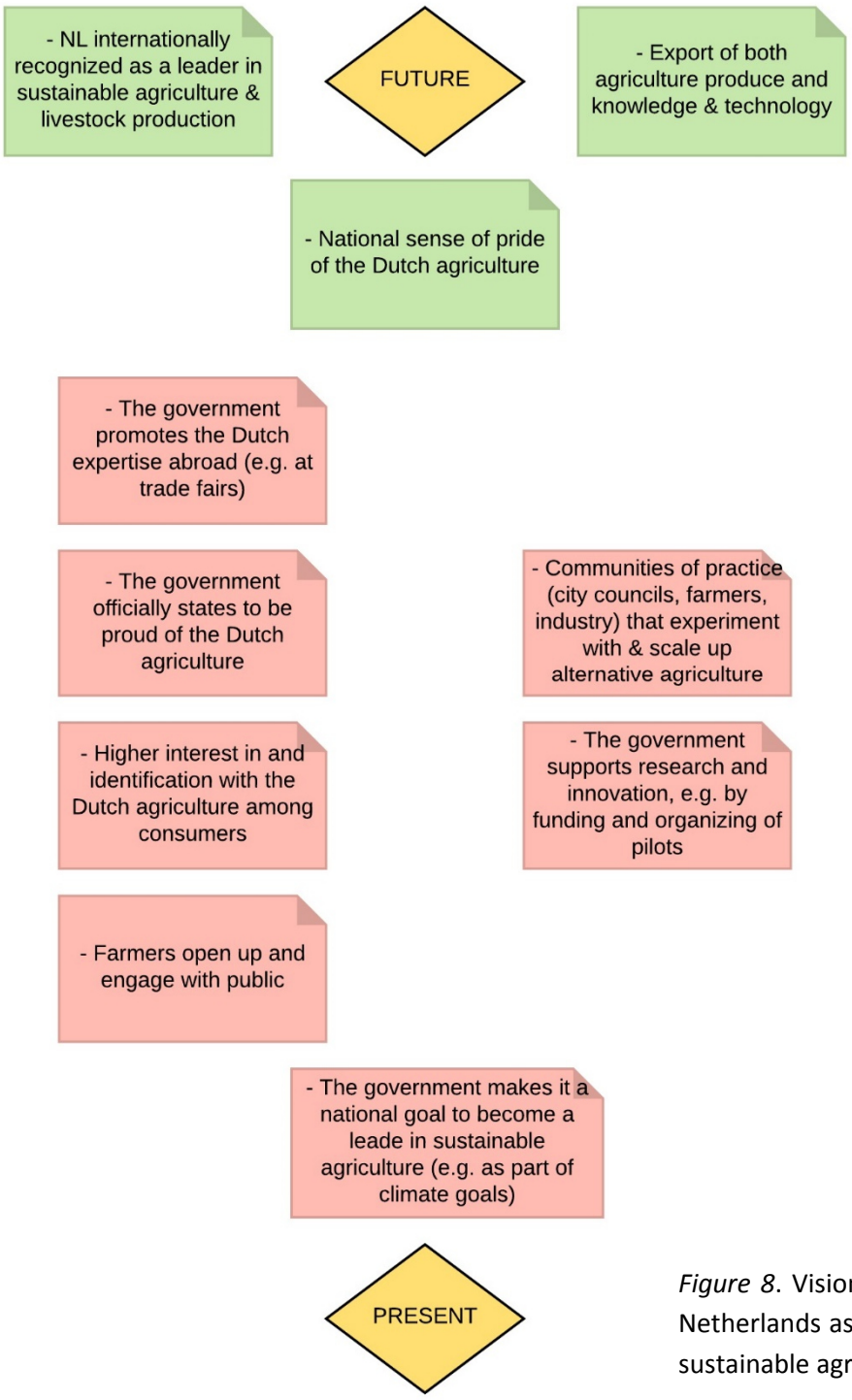

Figure 8. Vision and back-cast of ‚the Netherlands as international leader in sustainable agriculture' (own figure)

VISION

Another aspect of an ideal future raised by a couple of interviewees was the role of the Netherlands as an internationally recognized leader in expertise in terms of sustainable and efficient agriculture and food production – especially with regards to densely populated areas as well as regions abounding in water (figure 8). In that vision, the Netherlands would not only continue exporting agricultural produce, but also knowledge and technology to

other countries. This could represent an alternative source of income, if the domestic production of certain foodstuffs (such as animal products) would decrease in the future.

A couple of interviewees raised concerns about the Netherlands remaining a leading producer and exporter of meat and dairy. Whereas compared to other countries, the production in the Netherlands is undertaken relatively efficiently, it still brings about major impacts on the local environment. The resulting question of whether the Netherlands should attempt to further optimize its production and continue exporting, or rather reduce its production and leave it to other regions with an even higher environmental impact to accommodate demand, remained open.

BACK-CAST

The drafted steps leading up to this vision are rather rough and short-term. The most important elements include that the Dutch government would need to promote the Dutch expertise abroad, mainly in Asia (e.g. at trade fairs), and share a sense of pride for the domestic agriculture as it performs today. Moreover, again the government should support research and pilots to further develop and scale up alternative agricultural practices, both financially and by providing the necessary legal space. This could involve the creation of communities of farmers, municipalities and the industry in order to set up more holistic experiments.

This sense of national pride could be further encouraged by a higher interest on the side of consumers in how the Dutch agriculture and food production works and how it actually compares to other countries. This requires again more transparency and some sort of exchange between farmers and the public.

Moreover, the Dutch government could make it a national goal to become and stay a leading nation when it comes to sustainable agriculture. This could form another part of the Dutch climate goals and contribution to the Paris Agreement.

As this cluster does not entail specific changes in consumption and/or production, neither a concrete policy intervention as such, it is not further analyzed by means of the threefold theoretical framework. When looking at the bigger picture and at how the different vision themes and their back-casts relate to each other (see beneath), it becomes evident that the role of the Netherlands as international leader in sustainable agriculture would rather be a natural consequence of the previous clusters than something actively sought and fostered by government or others.

11.7 IMPLEMENTATION OF A ‘MEAT TAX’ OR TRUE PRICING SCHEME

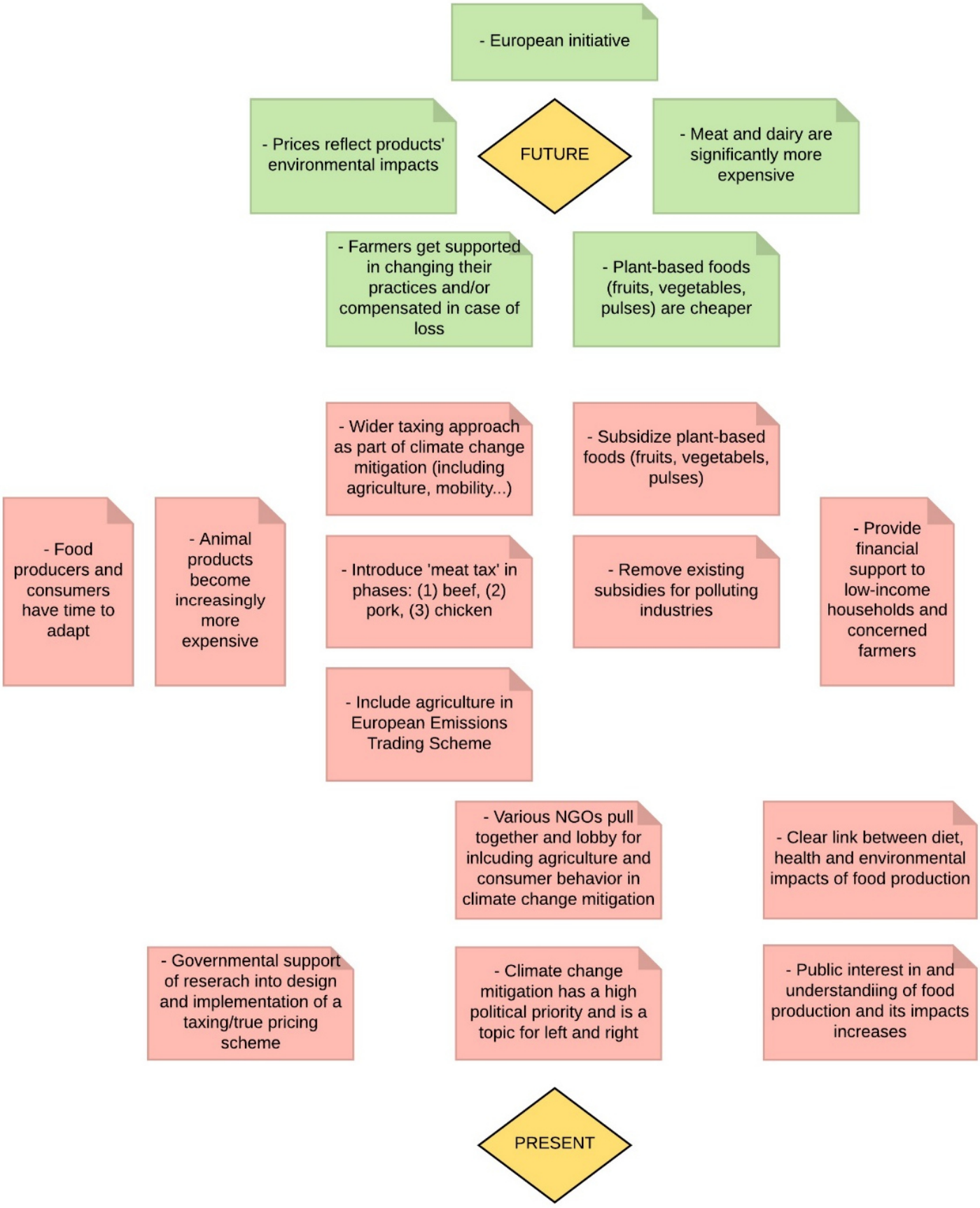

Figure 9. Vision and back-cast of ‚implementation of a ‚meat tax‘ or true pricing scheme‘ (own figure)

VISION

The final element discussed in the futuring exercise was the 'meat tax', whereby the interviewees were supposed to integrate some sort of higher taxes on animal products in what they perceive as a desirable future (figure 9). This always led to a discussion on whether the respective stakeholder found a 'meat tax' generally feasible and effective, and if so in what form.

No matter how exactly designed and set-up, a big share of the interviewees agreed that the prices paid by consumers should generally better reflect the good's impacts. This would lead to meat and dairy products getting more expensive whereas current retail prices do not reflect the goods' externalities. Moreover, they all thought that such a measure would need to be enacted by the government and then ideally on a European scale in order to avoid an import of domestically pricy products from neighboring countries without a comparable tax. The revenues generated through such a system could be used to subsidize the development of attractive vegan alternatives as well as the supply of fruits, vegetables and pulses which would thereby become cheaper. In case that such a tax would lead to a lower level of agricultural production and/or food processing, the concerned farmers and businesses should be offered compensation which could be paid for by the revenues raised.

BACK-CAST

An important element mentioned by multiple stakeholders was the idea of adopting a more comprehensive financial approach to climate change mitigation by, for instance, levying duties on (and removing existing subsidies for) all polluting industries and practices. That means that not only externalities in agriculture and livestock production should be priced, but also in other sectors, like mobility and energy. Moreover, when considering taxes on meat raised at the retail level, various interviewees suggested implementing these in phases to give consumers and producers the chance to adapt. Thus, one could, for instance, start off with taxing beef (with cattle raising being the most emissions-intense type of livestock production) and then continuously expand the taxing scheme to pork, chicken etc. At the same time, sustainably produced and healthy foodstuffs, such as fruits, vegetables and pulses would become cheaper and their production potentially subsidized by government.

Also here, some stakeholders raised the point of eliminating existing subsidies for polluting practices and redirecting them to fostering a more sustainable agricultural system, and/or including agriculture in the European Union Emissions Trading Scheme (ETS). This would most probably already lead to higher prices on certain goods (such as meat and dairy) and lower prices on others (such as fruits, vegetables and pulses), thereby sending an important signal to consumers. Such a broader approach, if well communicated, can furthermore lead to a greater acceptance of more stringent measures by the public. Again, it would be very important to thereby ensure that both farmers can continue making a living and especially low-income households can afford a nutritious diet.

In order to get to such a situation, NGOs active around environmental, health and animal welfare issues need to pull together and jointly lobby at the European level for a consideration of agriculture and consumer behavior in climate change mitigation. Coordinated action and clear demands towards policymakers are key to move the idea of a new tax scheme onto the political and public agenda.

Closer to the present, it seems mainly crucial that there is political consensus in the Netherlands that climate change mitigation has a high priority, and that attaining the goals set out by the Paris Agreement can only be possible if also interfering with agriculture and individuals' lifestyles. This requires that either a green(-minded) coalition is in power or that climate change mitigation has become a priority for both right- and left-wing. At the same time, public awareness of the agricultural system's and one's diet's impacts on health and environment needs to be stimulated. This can help creating a greater understanding and acceptance of higher prices on certain products later on. Especially, if health concerns become an issue also for low-income (so far less conscious) households that represent a great share of voters of the right-wing parties, the latter will pick up the issue and act upon it.

In terms of research, it is further important that there are more insights in how such a taxing or true pricing scheme can be set-up and implemented. Open questions and existing concerns, such as the question of sector and product scope and geographical scale as well as the potential discrimination of low income households when raising food prices, need to be addressed.

POLICY INSTRUMENTS

The final cluster is mainly about the concrete design of a 'meat tax' and other policy measures around it. Generally, economic policy tools were perceived as desirable by about half of the interviewees. Whereas some interviewees were in favor of a 'meat tax' levied at the retail level (e.g. by lifting the current BTW on meat and dairy from 6% to 21%), others thought it made more sense to rather tax the production where the actual negative impacts take place (e.g. by means of charges on emissions) – thereby giving a stronger incentive to farmers to adopt their practices.

Such an approach was considered more logical and transparent as it draws attention to the actual source of the industry's negative impacts. If well communicated to the public, it can also create understanding for the problem at hand than a 'sin tax', supposedly perceived by consumers as a sort of governmental punishment. In any case, most interviewees pointed to the necessity of some sort of compensation if employing an economic incentive (whether imposed on the production or collected at the point of sale). This could come in the form of buy-out schemes for concerned farmers or subsidies for plant-based foods.

POLICYMAKING AND AGENDA-SETTING

Several aspects from this cluster can be extracted and analyzed through the Multiple Streams Framework. First of all, it was mentioned by multiple interviewees that a green(-minded) coalition needs to be in power and/or climate change mitigation become an urgent issue for all political parties in order for a 'meat tax' to be considered. According to the framework, a legislative turnover can be crucial in initiating the implementation of a so far unpopular policy solution.

Secondly, coordinated action by different NGOs can accelerate this process, for instance, by lobbying at and putting pressure on the government (in the political stream), by offering concrete solutions (in the policy stream), or by influencing public perception of the problem at hand (in the problem stream). As found earlier, especially attention of the health-related issues around livestock production and meat consumption were considered important, as public interest can result in a change in national mood. In a next step, this can then create a higher public acceptance and support of policy action.

GOVERNANCE OF TRANSFORMATIONS

Also the idea of taxing the environmental impacts stemming from food production (as drafted by the interviewees) shows elements of what a societal transformation looks like. According to the various stakeholders, the introduction of such a seemingly drastic measure requires governmental commitment to address climate change mitigation in a way that might heavily interfere with agriculture, diets and free consumer choice. Such an approach thus needs to stem from and/or go along with a general shift in mindset regarding the urgency and scale of stringent climate action, which might then also concern other fields, such as mobility or energy. A 'meat tax' can however also be considered as an initially isolated policy measure, a 'small win' as defined by Weick (1984), and only once implemented trigger a wider transformation, for instance in diets and food production practices.

11.8 OTHER VISION AND BACK-CAST ELEMENTS

A few interviews revealed elements that did not appear compatible with the others due to substantive differences in content. This is due to the stakeholders' different value systems underpinning their ideas on the topic at hand. These elements are therefore not merged into the five vision and pathway clusters, but are listed for reasons of consistency below:

VISION

- The Netherlands as first vegan society of the world, i.e. complete ban of domestic animals for whatever instrumental purpose.
- The entire population has adopted a purely plant-based diet, the consumption of animal products is no longer considered 'normal'.

- The range of foods (including meat and dairy) offered in supermarkets today will not change in the future.

- No reduction in the current level of meat production; in the case of lower domestic consumption (e.g. as result of a 'meat tax'), the surplus is exported to other markets.

BACK-CAST

- In order to stimulate consumers to buy less meat, supermarkets should inform insurance providers about the buying behavior of their clients. Consequently, insurance companies can pay price premiums to those insured persons who supposedly consume less meat.

11.9 THE BIG PICTURE

After having described five different visions and pathways that represent clusters of various elements raised throughout the interviews, the question is whether and how these can be combined in a broader picture. This section makes an attempt to identify the most important interrelations of the various visions and back-casts and summarizes them in a final graph (figure 10). The five vision themes (or clusters as presented earlier) are colored in purple, the elements concerning the role of government in blue.

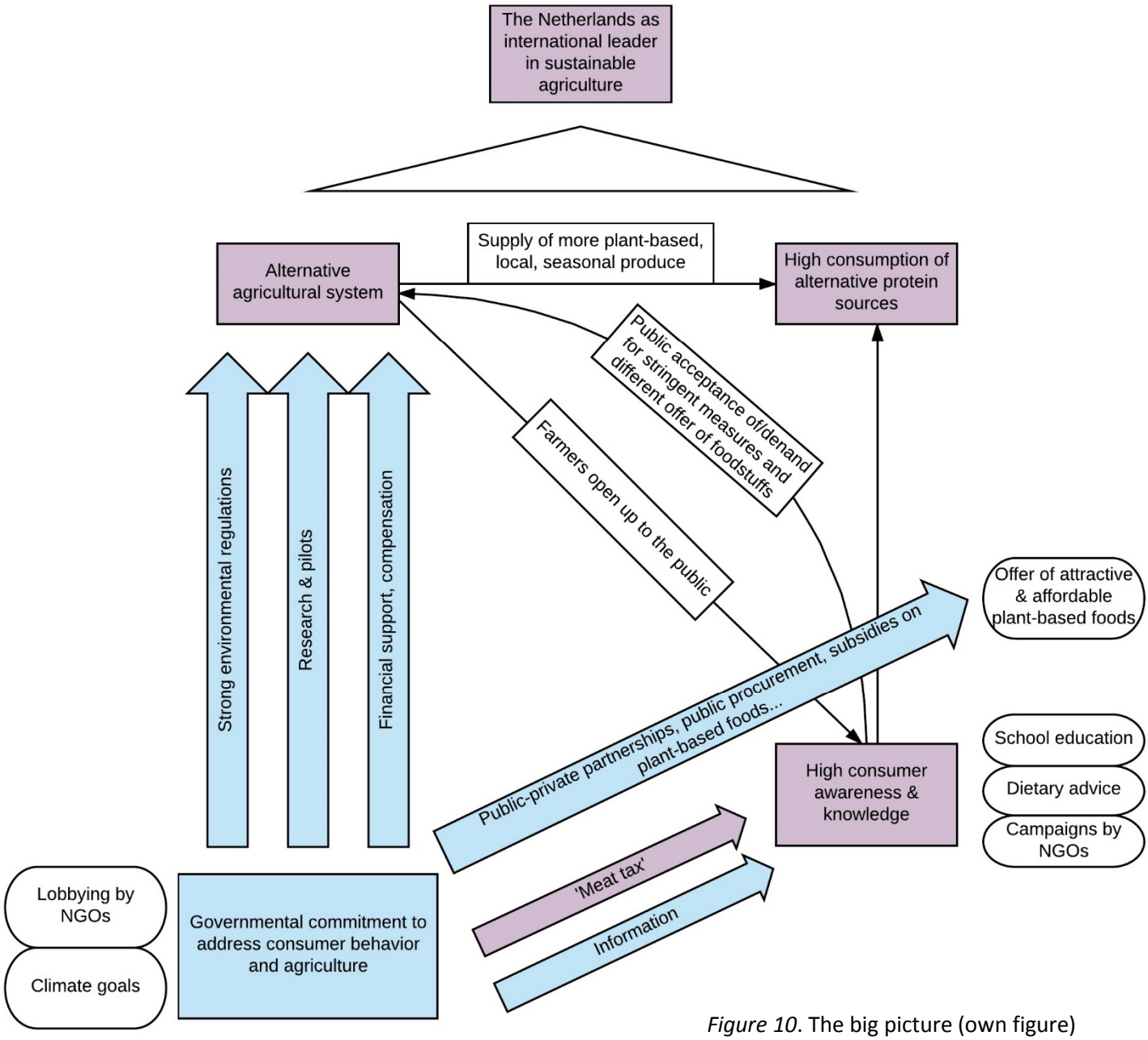

Figure 10. The big picture (own figure)

Firstly, it becomes evident that the interviewees consider a higher consumer awareness as very important. That includes aspects, such as knowledge of how food is being grown and/or processed, what impacts the production has on the environment and what a healthy and

nutritious diet entails. This seems key to any subsequent step. Whereas a 'meat tax' might be able to influence consumers by means of higher prices, a sustainable change in behavior (and mindset) also requires a certain level of understanding. This education of consumers can be achieved in various ways as described by the interviewees: by institutions, such as the Voedingscentrum, NGOs like Greenpeace and Milieudefensie, by means of labels in supermarkets, but also directly through governmental campaigns or in schools. In order to attract consumers' attention, it seems especially important to establish a clear link between one's diet, personal health and the environment.

The interviewed stakeholders found that a higher intake of plant-based foods can also be encouraged by nudges. If consumers get increasingly in contact with attractive and affordable plant-based foods (e.g. in canteens, restaurants and supermarkets), they are more likely to purchase and prepare them at home as well. The role of government thereby lies in issuing respective public procurement guidelines and in engaging in public-private partnerships which promote the development and marketing of meat replacements.

Next to these communication-based measures and nudges, the government can stimulate change in consumption habits by means of financial incentives. Either by increasing prices of animal products (for instance, through excise taxes, stricter regulations for farmers or removing existing subsidies which allow for unnaturally low prices) or by reducing prices of plant-based foods.

A prerequisite for any kind of intervention with consumer behavior and the choice of foods currently on offer is a national (or better European) commitment to take more radical action towards attaining set climate goals. A broader approach ideally tackles both production and consumption. NGOs can help underpin such a long-term movement by coordinated lobbying at both the national and European level putting emphasis on the necessity of broad (and rapid) action.

An alternative agricultural system was another important theme emerging throughout the interviews. It became clear that only a joint tackling of demand and supply can lead to a reversed ecological impact. If the domestic consumption drops, but the current level of production stays the same, the surplus will be exported – and the externalities remain. Therefore, it seemed crucial to most stakeholders that the government supports a transition of the present agricultural landscape with an ultimate reduction in livestock production. This can be through funding research and pilots in order to explore different farming techniques or the production of new crops, but also through regulatory measures. Some interviewees thought that if farmers were, for instance, faced with higher animal welfare standards or legal emission limits, they would be incentivized to adapt their production practices. At the same time, if public understanding of the importance of an ecologically sound agriculture and livestock sector grows, so would the acceptance of more stringent governmental

measures and possibly the demand for more sustainably produced and plant-based foodstuffs.

Most interviewees agreed that concerned farmers would need to receive some sort of compensation in case of them being required to drastically change their practices and/or reduce their output. Next to offering buy-out schemes for big livestock producers, who might go out of business, the government should provide subsidies to those who would like to render their practices more sustainable. Such a development of the agricultural sector was expected to go along with a greater focus on the domestic market and less export. However, the question remains whether the resulting relocation of meat and dairy production to other parts of the world absorbing the missing produce from the Netherlands is actually favorable.

Finally, the role of the Netherlands as international knowledge leader and best practice example with regards to efficient and sustainable agriculture can be considered a natural consequence of the developments sketched above. However, given the fact that the Netherlands currently already have a very strong position in global food production, the envisioned export of expertise and technology could take place earlier as well – if prompted by the government.

11.10 IDENTIFIED BARRIERS (AND POTENTIAL WAYS TO OVERCOME THEM)

Throughout the futuring exercise, various stakeholders pointed to certain barriers that they thought stood between the visions they had sketched and the present.

Firstly, the lacking attractiveness of plant-based foods was named as a potential obstacle. Currently, most dishes that people are familiar with, that are being offered in restaurants and canteens, and that future chefs learn to cook during their education are containing meat and dairy. On the contrary, tasteful, nutritious, appealing and easy-to-prepare vegan dishes are rather rare. Nowadays still a niche, they need to be further developed in order to be able to ‘compete’ with animal-based foodstuffs.

Secondly, it was pointed at the sheer complexity of the global livestock system. If only the Netherlands would reduce their level of meat and dairy consumption and/or production, the total global environmental impact would not change significantly, if lessen at all. This can thus decrease the willingness to act among policymakers and consumers. Currently, any EU or international commitment to tackle animal agriculture as part of climate change mitigation is lacking. However, a few interviewees said that the Netherlands could function as a pioneer and possibly inspire other countries to follow and take more radical action as well.

The third kind of barrier are certain international regulations, such as from the EU that can hinder measures directed at consumer behavior within a country. The Dutch government is, for instance, only allowed to support the Green Protein Alliance with a fixed amount of money in order to not distort the internal market by giving preference to specific product(s) (groups) or countries of origin. This might be solvable by a European commitment to address consumption and livestock as part of joint climate action.

The present lack of political will was listed as another obstacle. Currently (and supposedly also in the near to mid-term future), Dutch policymakers were said to be afraid of the societal backlash of any kind of stringent intervention with consumer behavior. Especially in view of the historical and economic importance of agriculture and livestock production in the Netherlands, seemingly restrictive political action in this realm appears to be very sensitive. A way out could be greater support (and power) of green(-minded) political parties like Partij voor de Dieren (PvdD) and GroenLinks which promote measures like a 'meat tax' already, and whose ideas are currently blocked by the bigger, more liberal and right-wing parties that are in favor of economic growth and export. This anticipated hesitance to undertake more stringent political action has also to do with the current level of strong lobbying from the industry (e.g. farmers, manufacturers, retail) as opposed to the rather weak position of environmental NGOs, which supposedly hinders any reorientation.

Furthermore, a few stakeholders pointed to the difficulty of actually changing the existing agricultural system (e.g. scaling down, greater focus on quality, or a switch to more plant-based produce). Due to governmental subsidies and the current retail landscape, most Dutch farmers are used to mass production at high cost efficiency. Also have the Netherlands historically developed into a main exporter of meat and dairy. Reforming such an established system seemed to most interviewees rather challenging – even in the long-run with individual farmers not daring to change and fearing loss of income. In order to overcome this dilemma, a couple of interviewees stated that it is crucial to demonstrate the economic viability of an alternative farming landscape, for instance by means of large pilots in different regions of the country or possibly also by redirecting government subsidies.

Finally, it was often mentioned that influencing people's mindsets and behavior is simply very difficult, especially with regards to routinized and established habits, such as eating. Food is perceived as something utterly personal and essential with certain eating patterns being deeply cultural and unreflective. Many interviewees were thus unsure about whether one can bring about a significant change in consumption patterns at all, and if so, how, i.e. with what kind of policy interventions ('meat tax' being one example).

12. Discussion

Having presented the theoretical and empirical results from the conducted literature review and the interviews with relevant stakeholders, several aspects regarding both the more technical and methodological aspects of the study as well as its content (also against the background of the theoretical framework) stand out. These are discussed in the following, together with the observed limitations inherent to this study.

12.1 REFLECTION ON THE ANALYTICAL FRAMEWORK

The initial idea of this research was to draft a concrete implementation pathway of a 'meat tax' for the Netherlands, including the different steps of a policymaking process. As mentioned before, it had therefore been considered to use a more elaborate theoretical model, the *five-thread (stream) model of policy processes*, which aims at capturing the various phases from agenda-setting to policy enforcement (Howlett et al., 2016). This turned however out to be hardly applicable to the results obtained throughout the empirical research phase.

From the interviews it became apparent that the objective of designing an actual 'meat tax' and sketching a detailed policymaking process was too specific and ambitious given that it is at present still a very new and highly contentious idea only promoted by a few actors (e.g. PvdD). Instead of trying to grasp the entire policy cycle, it therefore seemed more feasible and relevant to rather focus on the agenda-setting phase as a first step towards a measure as radical as a 'meat tax' being widely considered by the public and policymakers alike. Therefore, the Multiple Streams Framework (Cairney, 2013; Zahariadis, 2007) with a more focused view on the agenda-setting phase was chosen.

Even the Multiple Streams Framework appeared to be suited to only some extent. This can be again ascribed to the fact that especially the interviews covered much more than the discussion of a 'meat tax'. Instead, the various stakeholders shared their thoughts on specific policy instruments (but not necessarily the policymaking processes around their consideration and implementation) and the wider context of the issues linked to livestock breeding and meat consumption in the Netherlands. This has to do with the fact that many of the interviewees are not actively involved in policymaking themselves, and that in the Netherlands, strong non-governmental actors (e.g. the industry, NGOs) play an important role with regards to how current production and consumption patterns are set-up.

Instead of persistently trying to steer the conversation in the direction of the design of and policy processes around a 'meat tax', the interviewees were given, on purpose, the room to express any other thoughts on livestock farming and the consumption of animal products in the Netherlands. This was deemed important in order to be able to explore the interrelated

issues and stakes at hand, and to see if the interviewees might actually suggest other approaches to the problem, which they might perceive as more desirable. Still, a couple of insights could be gained by using the Multiple Streams Framework. For example, it became clear that due to their particular role, NGOs can be active across the different streams, thereby generally showing a high potential for influencing policymaking processes, be it through creating awareness of a particular problem or through taking part in a policy community working on solutions. Moreover, as multiple interviewees had mentioned, the framework underlines that a legislative turnover (e.g. the rising of a green-minded coalition) brings about the chance for a new window and subsequent change in policy direction.

Coming to the emerging field around transformations towards sustainability, it seemed helpful to reflect on the empirical insights against the existing literature (e.g. Patterson et al., in press). However, there is still a lack of robust frameworks that fit specifically governance questions around transformative change. This is perceived as a drawback for the study of more profound reforms of prevailing systems (such as those envisioned by the interviewees) and of the related policy processes and actors. The results of this thesis thus strengthen the notion of a need for combined approaches that analyze both questions of policy design and formulation as well as governance of wider societal transformations.

12.2 REFLECTION ON THE INTERVIEW PROCESS

Generally, the 17 conducted interviews can be perceived as a major data source of and enrichment to this research. Having had the chance to speak to a great variety of important stakeholders in the field allowed for the collection of an extensive and somewhat balanced set of different perspectives. This was especially insightful in view of the limited amount of time available for this thesis.

Concerning the interviewees as such, various categories of stakeholders (researchers, policymakers from the ministries, the industry and retail as well as NGOs) have been spoken to and their perspectives have thus been considered throughout this research. Nevertheless, at least one important group of actors, namely the political parties, is largely missing. This is perceived as a shortcoming of this study, as the political parties would play an important role in the different stages of the policymaking around a potential ‘meat tax’. Although all major Dutch parties have been contacted, it remained challenging to arrange interviews with them – amongst others due to the recent parliamentary elections and subsequent coalition negotiations which led to severe time constraints and staff shortages on their side.

Moreover, the specific set-up of the interviews and implementation of the futuring exercise in one-to-one sessions led to some implications. As mentioned above, most of the interviews were not entirely (or some even hardly) focused on the proposal of a ‘meat tax’ and its potential policymaking process. This can be due to the fact that the interviewees were asked

to generally imagine their preferred future Netherlands in the first place – a deliberately very broad question to stimulate the participants' imagination and to extract their individual outlooks on the issue area. Consequently, diverse aspects were raised e.g. relating to diets, agriculture and consumer knowledge. Only afterwards, the interviewees were supposed to include some form of 'meat tax' in their vision. This procedure is one reason for the lack of focus on the policy intervention as such as well as its implementation.

Most stakeholders sketched rather rough (i.e. partial) as opposed to clear and consistent pathways (back-casts), often involving only a few elements. In addition, it has been observed that most interviewees had difficulties surpassing the present and actually planning backwards from the future without letting limit themselves by current barriers. The main reason for this is having conducted the exercise in one-on-one conversations instead of a workshop setting with multiple stakeholders at the same time who would otherwise complement each other.

However, there were also a number of evident benefits of interviewing the various stakeholders individually. Firstly, it was significantly easier to arrange numerous meetings with different stakeholders over a period of four weeks instead of having to find a time and location that was suitable for multiple participants. Secondly, given that the issue at hand is a controversial and sensitive one, the more intimate setting allowed for the interviewees to speak openly and share their opinion without having to fear interruption or direct judgement by others. Thirdly, the sheer amount of time (usually about an hour) that every stakeholder got to fill by him- or herself permitted the extraction of an extensive and balanced set of different perspectives. Now, a potential subsequent workshop session could still be used to jointly discuss the different pathways and to try to overcome the barriers outlined by the interviewees so far.

Another important aspect concerns the use of 'meat tax' as a case study in the interviews. Although the conversation did often not solely deal with 'meat tax' as such and the drafting of a concrete policymaking process turned out difficult, the use of a current, concrete and controversial policy intervention helped to trigger discussion. Faced with the drastic idea of taxing food as part of climate change mitigation, all interviewees directly shared their opinion on whether and how they could see a 'meat tax' potentially work in the future Netherlands, or why not. Making the stakeholders ponder over a future that involves something which seemed like a radical step to take for many of them (namely a future in which animal products would be taxed in order to discourage consumption), allowed for them to think about other fundamental, to them personally more desirable changes. The concept 'meat tax' thus became an entry point for discussing other (related) issues and ideas (e.g. an alternative agricultural system) that the interviewees perceived as (more or at least equally) important to look at in terms of sustainable development. This was supposedly also the case, because 'meat tax' is a tool that is affecting consumption in the first place, but

eventually aims at influencing production. Talking about 'meat tax' thus easily stimulates a discussion about the entire food chain.

Having included the historical case of tobacco control was on the one hand helpful in order to provide the interviewees with a popular example of governmental intervention in consumption behavior and to demonstrate a full back-cast. Some stakeholders actually drew parallels between the two instances, whereas others rejected the comparison completely. Looking back, the case of tobacco control remains a fascinating one to study, especially with regards to its global scale as well as its persistent and successful fight of consumption over time, employing a wide range of ever more restrictive policy instruments.

Nonetheless, it is important to note that meat is broadly considered a staple food (with tobacco being rather considered a luxury article) and that the negative impacts on health stemming from smoking are much more evident and widely known than those of producing and consuming meat and dairy (be it on health or the environment). This has an influence on consumers' motivation to act who are usually triggered by a "visible positive effect 'close to home'" (Wolff & Schönherr, 2015, p.13) as stated before. Thus, one the hand, the question remains to what extent one can really draw important lessons from tobacco control to the case of a policy mix around 'meat tax'. On the other hand, it will be difficult to find another, more suitable example, as up until now, no other instance of stringent governmental intervention with products, so deeply embedded in eating cultures worldwide as meat and dairy, has been found. The comparison between tobacco and animal products might become more relevant, if the emerging awareness of the adverse effects of consuming meat and dairy on health becomes stronger in the future.

To sum up, a few recommendations for using foresight methods in the study of societal transformations and/or contested (policy) issues can be provided: firstly, the use of a case study that was current, concrete and controversial proved effective in prompting discussion and in creating a level of conversation in which the interviewees were able and open to think about other, as radical changes that might be more desirable to them, and thereby show a different side of the problem at hand. Secondly, using a historical, somewhat similar example (prepared in form of a vision and back-cast) helped some stakeholders to grasp an idea of what was expected of them. Aiming at drawing lessons from one case to another, it appeared insightful to obtain relevant stakeholders' opinion on the comparison in order to allow for a reflection on this kind of methodological choice. Thirdly, although visioning and back-casting is usually done in workshop settings, this research has shown that especially in the case of sensitive questions involving different stakes and interests, one-on-one sessions can be valuable. They can be followed up by a group exercise to allow for a balanced and comprehensive collection of various perspectives, which might remain unheard otherwise, in the first place.

12.3 REFLECTION ON THE RESULTS

Coming to the discussion of the actual results, various points are looked at. Firstly, as has been found by other researchers (e.g. Kiff et al., 2016; Garnett, 2011) earlier, in the Netherlands, as globally, one can observe a general reluctance on the side of policymakers to undertake stringent action and to interfere with consumption behavior in the context of climate change mitigation. Attempts to manage the various issues stemming from livestock breeding are mainly made by means of technical measures, such as by limiting (though not actively reducing) the number of cattle pigs or more efficient feeding schemes in order to decrease emissions (Government of the Netherlands, 2017). Consumers themselves are only slowly being targeted, though by communicational and educational interventions only.

Furthermore, the two ends of the supply chain (i.e. production and consumption) are seemingly being tackled somewhat disconnected from each other. Although initiatives such as the Green Protein Alliance aim at curbing the amount of animal protein consumed by the Dutch, there is no stated goal of also reducing production or the cow and pig herds. This has to do with the high export rates of Dutch animal products, which represent a major economic force.

Despite 'meat tax' being at least considered/and or actively promoted as a potential tool by a few actors (e.g. by PvdD and GroenLinks, RIVM, and the non-governmental actors spoken to), there seems to be a clear lack of broad interest in as well as acceptance and/or perceived potential of such an instrument in the Netherlands. The various policymaking stakeholders interviewed have all rather underlined the government's present focus on solely informing consumers and further promoting the industry in order to not interfere with free consumer choice and the market. This is a major barrier, as solely the national government (ideally together with other governments throughout the EU) would be in the position to implement such a measure.

Secondly, coming to the policy design, it became apparent from the literature (e.g. Dagevos & Voordouw, 2013; Reisch et al., 2013, Vinnari & Tapio, 2012), the historical case of tobacco control and the interviews that if(!) the government was to introduce a 'meat tax', it should happen as part of a policy mix. A 'meat tax' would ideally be preceded and accompanied by nudges and extensive information-based measures, creating awareness of the issue at hand as well as the necessity for restrictive action, but also giving both consumers and the industry the possibility to adapt. Depending on the exact policy scheme of a 'meat tax', most stakeholders were afraid that it would disadvantage low-income households. Thus, some sort of compensation, for instance in from of subsidized plant-based foods, would be needed.

Thirdly, when looking at the bigger picture and especially the various stakeholders' contributions, one realizes that a 'meat tax' in whatever shape or form can only be

considered a ‘tool’, and not an ‘end’ to itself. A ‘meat tax’ can raise citizens’ awareness and potentially reduce the demand for animal products, but does most probably not influence the production and the externalities related to it. Talking about the expected effects of a ‘meat tax’, most interviewees foresaw an increase in export of meat and dairy to other countries. This could also be observed in the case of tobacco, when domestic demand had dropped in the United States in the 1980s (Courtwright, 2005). Such a development could be prevented by strict trade regulations or an international initiative involving a wider implementation of a tax alone. This is however expected to be (even more) difficult given the prevailing principles of free trade and free consumer choice as well as the growing demand for meat and dairy on a global scale.

12.4 RECOMMENDATIONS TO POLICYMAKERS AND OTHER STAKEHOLDERS

In order to substantially lessen the ecological impacts of livestock breeding in the Netherlands, further steps and a more holistic approach that go beyond the mere implementation of a ‘meat tax’ are needed. As the synopsis of the different clusters shows, such an approach must equally focus on agriculture, consumer understanding and education as well as the supply of alternatives, ideally accompanied by international collaboration. The final recommendations given to policymakers based on this research are reflecting these identified interrelations.

To begin with, it is important to bear in mind that the idea of addressing livestock production and the consumption of animal products from a governmental point of view represents just one possible starting point in the attempt to mitigate climate change. And this is exactly what is being argued by those who do not want the government to interfere with neither of the two above – thereby ignoring the sector’s dramatic and wide-spread externalities.

Therefore, a political consensus on the fact that agriculture and livestock breeding in particular deserve and need to be tackled as part of a wider climate policy approach is crucial. The research has shown that this appears to be a pre-condition for any further action. The need for this kind of commitment can be based on the Netherlands’ signature of the Paris Agreement as well as on increasing ecological issues within the country (e.g. water and soil damage due to phosphate and nitrogen surpluses).

Awareness among both policymakers and the public can also be achieved by pointing to the mounting evidence of the negative health impacts of an omnivorous diet, deemed to be causing type 2-diabetes, obesity, heart disease and cancer amongst others. Whereas climate change affects human wellbeing only indirectly for now (in the Netherlands at least), this can be a somewhat stronger message, potentially more easily received by critics. Either way, it has to be recognized that continuing with the status quo is not an option, but will have ever more dangerous implications.

Wellesley et al. (2015) add to this idea that creating this kind of awareness and making clear to the public why seemingly restrictive intervention is needed will help curb the societal backlash that is feared at the moment. A line of argumentation can be that (just as in the case of tobacco) the "[g]overnment's responsibility to safeguard the public's health through law has been part of the social contract since ancient times. Cicero declared *salues populi suprema lex esto* – 'the safety of the people is the supreme law'" (Hodge Jr. & Eber, 2004, p.516).

Secondly, it is recommended to actively promote citizens' knowledge about food production, a balanced nutrition and the impacts of one's diet on both health and the environment through different channels. As has also been found by Hoogland et al. (2005), this can contribute to a change in consumption patterns, and certainly again create awareness of the problems at hand as well as acceptance of any further governmental action. If the demand for plant-based foods increases, the industry will react accordingly. Coming back to the theory on governance of transformations, it is this combination of top-down regulation and bottom-up movement that can bring about change from two sides. Existing channels (e.g. the Voedingscentrum) shall be further supported financially and their actions (e.g. school education) can be expanded, for instance by a more direct interaction between growers and the public. Another communication-based measure can involve public campaigns that advertise a higher intake of fruits and vegetables. Linked to this is the by many interviewees perceived need for a higher valuation of food.

Regarding the actual intake of plant-based foods, it is further suggested to invest in nudging, be it on the shopping floor, in public canteens or restaurants. Also here, existing initiatives, such as the Green Protein Alliance, ought to be further subsidized. The government can hereby also play an important role in drafting relevant public procurement guidelines. Under this proposal go also any financial incentives. A 'meat tax' (e.g. in form of a higher BTW of 21%) is in principle still recommended in order to raise awareness and, if combined with subsidies on plant-based foods to steer demand towards alternatives, but can never work in isolation.

Fourthly, the research shows that tackling the issues at hand requires a holistic food systems approach (e.g. Westhoek et al., 2014), tackling the various processes and actor interactions currently shaping demand and supply. In terms of production, it is recommended to aim at a further reduction in livestock herds. This is a measure recently put in place, however currently only directed at dairy farms in order to comply with the European phosphate ceiling (Government of the Netherlands, 2017). Under that scheme, dairy farmers who decide to quit dairy farming in 2017 completely, are eligible for a premium. Similar financial incentives could also be provided to farmers in other sectors who are willing to reduce their number of livestock, or to restructure their farming activities in a more sustainable way (for instance, based on permaculture principles). By strengthening the Dutch farmers' position and valuation as essential contributors to the supply of both food and healthy ecosystems,

consumer knowledge about the issues at hand as well as their acceptance of higher prices of certain goods and a different kind of produce can be reinforced. A change on the side of production can also be stimulated by law, for example by imposing more stringent regulations on emission limits.

If such a change to the current agricultural system is actually taking place, this will have an impact on the Dutch position in the global meat and dairy market. Presently a leader in export, a lower domestic production will mean less trade abroad. In order to avoid that this will cause other countries to absorb the lack in produce (with even worse ecological implications), the fifth recommendation concerns the Netherlands' role as an international leader in agricultural expertise. On the one hand, the Netherlands could spread its knowledge and technology on a global scale and help other nations to render their production more efficient (some might say more sustainable) in the first place. On the other hand, the Dutch government could however also spread the idea of influencing consumption and promoting a plant-based diet, backed by research from recognized institutes, such as Wageningen UR. Such an approach could, for instance, be part of the Dutch engagement in global development cooperation. It would also do justice to the fact that the impacts of livestock production and the consumption of animal products are a global problem. Therefore, restricting any action to the Dutch context might directly profit the Netherlands, but will not have any significant influence on a bigger scale.

Lastly, the research has also shown that there are various fields of research that can be further supported by government, especially with regards to the integration of alternative farming methods into the current system as well as the range, attractiveness and distribution of plant-based foods and meat replacements. This also includes generating knowledge about how different networks of actors (e.g. communities, farmers, industry) can work together in a more collaborative way to promote a different kind of food production and consumption. Next to financial backing of research (at e.g. RIVM, Wageningen UR, the Voedingscentrum), the government can also assist by creating the necessary legal space to experiment with new practices.

Overall, it was encouraging to see throughout this research that every stakeholder spoken to is well aware of the problems stemming from the current way of livestock farming and level of meat and dairy consumption in the Netherlands. Despite this issue being very complex and therefore not the most suitable for radical action, there seems to be common ground for a shared direction.

13. Conclusion

This chapter presents both a summary of the conducted study and an answer to the raised research question: *In what form and through which political pathways could a 'meat tax' be a feasible policy instrument to reduce citizens' meat consumption in the future Netherlands?*

Putting the emerging concept 'meat tax' as a current, concrete and controversial policy instrument at its focus, this thesis aimed at exploring both a potential policy design and a political pathway leading up to its formulation and implementation in the future Netherlands.

The literature review and analysis of the policy interventions in the case of tobacco control have yielded that there is generally a certain array of policy instruments available if aiming at influencing consumer behavior. The most common typology distinguishes regulatory, economic, communication-/information-based, procedural-voluntary as well as *nudge* instruments. Their suitability and effectiveness however depend on a wide range of factors, such as the perceived sense of urgency for action and the availability of substitute goods. Both the literature and the example of tobacco control emphasized that a policy mix of multiple instruments (e.g. financial and information-based) is also favorable in the case of a governmental intervention in meat and dairy consumption. A 'meat tax' alone does not suffice.

Looking at the historical evolution of tobacco control in the United States and beyond, it became firstly apparent that it took decades before serious (governmental) action had been undertaken and that secondly, the clear threat to personal health as a direct consequence of smoking helped creating awareness and acceptance of ever stringent measures both in society and among policymakers. Moreover, an international commitment and movement into the same direction was and is backing the need for interference. For the case of policy action around the consumption of animal products and/or livestock production, this means that a wider attention to and communication of health implications (as opposed to environmental externalities alone) can help creating public and political understanding. In addition, the meat and dairy sector being very international, this also implies that a narrow focus on the Netherlands can hardly grasp the full dimension of the issue and result in adequate solutions.

The second part of the thesis involved 17 interviews with relevant stakeholders (from government, industry, research and NGOs) throughout the Netherlands in order to collect their perspectives on the issue at hand. Whereas the original intention was to use the obtained data as main input for drafting a concrete 'meat tax' design and policymaking process, this focus has slightly changed throughout the empirical research phase. While speaking to the 19 recruited stakeholders, it turned out that at the current stage, the question of how a 'meat tax' could possibly make it onto the political agenda and find broad

consideration by policymakers and the public in the first place is much more pressing to start with. In addition, many stakeholders found that a somewhat simple policy measure such as a 'meat tax' would not do justice to the complex circumstances at hand.

The interfaces have thus been used to gather the interviewees' broader outlooks not only on a 'meat tax' as an isolated policy instrument, but on livestock farming and the consumption of animal products in more general terms. By including a *visioning* and *back-casting* exercise in each of the interviews, it was possible to identify five clusters of changes that the various stakeholders perceived as desirable and necessary in order to change the current food system in a wholesome fashion. These include next to the implementation of some sort of 'meat tax' or broader true pricing scheme: a higher consumer awareness and knowledge, a greater intake of plant-based foods, a more small-scale, sustainable farming system with less (intensive) livestock breeding, and the Netherlands in the role of international leader in expertise with regards to sustainable and efficient agriculture and food production.

Thereby, it became apparent that a 'meat tax' should never be an end to itself, but can rather be seen as a tool to be possibly employed as part of a wider transformation. A 'meat tax' should by all means be part of a policy mix, complemented by, for instance, other financial incentives (e.g. subsidies on plant-based foods and for those farmers investing in changing their practices), communication-based tools (e.g. school education or public campaigns) and regulatory instruments (e.g. emission limits for farms and industry) as well as *nudges* (e.g. product placement in retail).

Regarding the political pathways leading up to the implementation of these kinds of measures, the interviewees were asked to sketch the most important steps that they thought were necessary to achieve the envisioned future. These can be summarized as follows: firstly, an initial strong governmental commitment to a long-term and comprehensive climate change mitigation strategy including agriculture and consumer behavior was considered a pre-condition for any further action. Secondly, a clear consumer understanding of the direct connections between one's diet, health and the environment was regarded as relevant for fostering public acceptance. This knowledge could not only be promoted by an extensive distribution of information through various channels, but also by means of an altered interaction between producers and consumers. Thirdly, NGOs were thought to have a vital role in steering attention of both citizens and politics to the shortcomings of current livestock farming and consumption patterns. Furthermore, governmental support of various research fields was deemed valuable, e.g. with regards to the development of attractive, affordable and widely available meat replacements or the economic viability of alternative agricultural practices. Finally, in order for farmers to dare making the switch, their future income must be secured, which could be supported by state subsidies, compensation for provided ecosystem services and/or a higher willingness to pay for a certain produce on the side of consumers.

In general, the research approach highlighted that it is not feasible to consider neither the Dutch livestock farming nor the Dutch consumption of animal products isolated from its embeddedness in a global food system context. Moreover, it was encouraging to discover that all stakeholders interviewed were well aware of the complex of interrelated problems, which points to a common ground for future action. To conclude, this thesis has thus made an important first step towards the exploration of the feasibility and implementation of a potential 'meat tax' in the Dutch context.

Future research could complement and build on this thesis by looking at the concrete design of the policy mix around a 'meat tax' addressing consumer knowledge and behavior as well as the agricultural system. This would ideally be supported by further stakeholder engagement and an expanded use of foresight methods in order to secure its practical relevance.

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Appendices

APPENDIX 1 – List of interviewees

No.	Interviewee	Organization	Date	Category
1	Stijn Rombouts	GroenLinks	04.05.2017	Political party
2	dr. Floris van den Berg	Utrecht University	08.05.2017	Researcher
3	Briede van Bemmelen	GYS	08.05.2017	Industry
4	Kaan Ozdurak	Greenpeace	10.05.2017	NGO
5	dr. Leon Mol	Ahold Delhaize	10.05.2017	Industry
6	Henk Westhoek	PBL Netherlands Environmental Assessment Agency	11.05.2017	Researcher
7	dr. Kees de Gooijer	Top Sector Agri&Food	11.05.2017	Researcher
8	Bernard Cino	Ministry of Infrastructure and the Environment	16.05.2017	Policymaker
9	Floor Uitterhoeve	Dutch Food Industry Federation (FNLI)	17.05.2017	Industry
10	Meike Rijksen	Greenpeace	18.05.2017	NGO
11	Tim Verhoef, Peter van Velzen	Ministry of Economic Affairs	18.05.2017	Policymaker
12	dr. Gijs Theunissen, Rosalie Braakman	Ministry of Economic Affairs	23.05.2017	Policymaker
13	Jeroom Remmers	Milieudefensie	24.05.2017	NGO
14	Dé van de Riet	Centrale Organisatie voor de Vleessector (COV)	29.05.2017	Industry
15	Anita Scholte op Reimer	Ahold Delhaize	30.05.2017	Industry
16	Corné van Dooren	Voedingscentrum	31.05.2017	Researcher
17	dr. Hannah van Zanten	Wageningen UR	01.06.2017	Researcher

APPENDIX 2 – Interview set-up and questions

[Shortly introduce myself and the research project.]

1. Introduction

Do you mind, if I record this interview?
Can I include your name in my report?

Could you shortly introduce yourself and your work?

How is your work related to the fields of livestock farming and/or the consumption of meat and dairy?

Do you see the issues related to livestock farming and/or the consumption of meat and dairy currently being tackled by any actor in the Netherlands?

How and by whom do you think should these issues be addressed in the future?

[Pose questions specific to each stakeholder, e.g. with regards to their particular sector, organization, activities, ongoing projects, collaboration with other actors etc.]

2. Futuring exercise

<u>Visioning</u>
Now we are going to imagine the future Netherlands, with the only precondition that the consumption of animal products is significantly lower than today:

What does your ideal/preferred version of that future look like?

[Develop vision by means of post its.]

What role could a 'meat tax' (i.e. some sort of higher taxes on animal products) play in your vision?
What would such a tax and the policy mix around it ideally look like?

<u>Back-casting</u>
[Show example back-cast of tobacco control in the United States to half of interviewees before their back-cast, and to the other half after their back-cast.]

Now that we have your preferred vision of the future, we want to find out how to get there. That means that we will start off with the future and think backwards, step by step, about what would need to happen to get the policy mix around a 'meat tax' into force. So I will ask you over and over again "If we want to attain [current step], what would we need to do or have in place for that to be possible?"

Between your preferred future and the present:

What are the key steps in terms of political action and policymaking to get to this proposal? What are the key steps in terms of societal changes to support this process?

[Develop back-cast by means of a timeline on paper with post-it's containing the different steps.]

Who are the most important actors in each of these steps? What are their roles?

Are there any barriers to this back-cast that have not been considered in this back-cast? How can they be overcome?

3. Closure

What did you learn from this exercise?

How did you experience the exercise?

Is there anything else that I should have asked you, or that you would like to add?

Would you be interested in a copy of my research report?

[Take photo of post-its.]

APPENDIX 3 – Coding structure as created in *NVIVO*

Name	Sources	References
BACKCASTING	0	0
Awareness	8	11
Link between meat and environment	5	5
Link between meat and health	9	16
Misperceptions about veganism	4	4
Positive message	6	11
Provide information	7	9
Role models	3	3
Demand-driven	9	20
Dutch farmers	4	9
Alternative sources of income	5	18
Need to open up	1	2
Pride	2	2
Education	0	0
Cooking	4	6
Dietary advice	4	7
Schools & children	6	9
Foci of innovation	6	10
Offer alternatives	5	8
Role of early adapters	5	13
Role of government	6	9
(Financial) support (of innovation)	7	15
Climate agreements	8	12
Face reality of farming	2	3
Focus on food instead of agriculture	2	3
Legal space	4	8
Long-term commitment & strategy	7	9
More holistic climate policy & mitigation	5	10
PPP	2	4
Provide information	10	18
Public procurement & public space	6	6
Removal of agricultural subsidies	7	11
Strong environmental regulations on production	7	12
Role of research	8	12
Shock event	2	3
Barriers	8	11
Barriers for farmers	5	9
Changing behavior & mindset	8	13
Complex system, question of impact	4	8
Lack of international (EU) commitment	2	5
Lack of 'nice' alternatives	2	5
Lack of political will	4	6
Lobbying	5	5
Current approach to and perception of meat production & cons	9	26
Animal welfare	5	9
Antibiotics	3	3
Climate	9	15
Cows for milk & meat	3	3
Current governmental action	5	12
Educational activities & information	3	5

Hesitance	9	15
PPP	7	14
Production rights system	4	6
Public procurement & public space	4	5
Research	6	11
Voedingscentrum	6	10
Dairy	2	2
Feed	5	5
Health	4	5
Meat replacement	6	8
Role of retail	8	31
Labels	4	4
Vegan diet	4	6
Policy mix around meat tax	8	11
AGAINST	7	9
Anticipated effects	14	28
Combined with subsidies	7	18
Differentiation between products	8	12
FOR	4	6
Heigth	9	12
Political support	7	15
Product placement	1	1
Production	5	11
Revenues	12	16
Scale	4	7
True pricing	8	21
Tobacco	11	18
VISIONING	0	0
Alternative sources of protein	10	12
Insects	5	6
In-vitro meat	5	5
Consumer knowledge	11	16
Consumer values & perception	5	7
Dutch farming landscape	11	15
Alternative agriculture & land use	7	11
Circular economy	5	9
Small-scale	4	5
Cows for milk & meat	2	2
Number of animals	6	8
Dutch retail landscape	2	2
Export	5	6
Health	3	3
Meat & dairy consumption	8	18
Eat the whole animal	3	4
Free consumer choice	5	10
High quality meat	5	5
Need for direct meat replacement	6	8
Vegan diet	6	10
NL as international leader	6	9
Societal changes	5	14