



GÖTEBORGS
UNIVERSITET

DEPARTMENT OF POLITICAL SCIENCE

Challenges and conditions for collaboration

A case study of how Swedish agencies address and handle collaboration and governance challenges in their work towards achieving sustainable development goal 2

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Master's Thesis:	30 credits
Programme:	Master's Programme in Political Science
Date:	18 th August 2021
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Words:	17719

Abstract

This study focuses on collaboration and governance challenges within the implementation of Sustainable development goal 2 (SDG 2) in Sweden. The study is based on a theoretical framework on wicked policy perspectives and the four characteristics: complexity, divergence, fragmentation and uncertainty. Two research questions guide the analysis. The first question examines how Swedish government agencies organize their work related to achieving the SDG 2 targets, focusing on established collaboration strategies and programs. The second question analyzes what the main collaboration and governance challenges addressed by the agencies are and the potential solutions discussed in order to solve these challenges. The study uses a case study design and the empirical material, consisting of official documents and semi-structured interviews, is analyzed by using a qualitative content analysis.

The results indicate that the work is organized through many different strategies, initiatives and programs with no coherent unifying platform for collaboration. The main collaboration and governance challenges addressed by the agencies are lack of time and resources, lack of clarity on how SDG 2 relate to other national goals and strategies, target and conflict-seeking structures, unclear directives and division of responsibility, silo organizational structures, lack of research within the field, unclear how to use knowledge in practices and no inclusion of political aspects in the discussion. These results indicate characteristics of both complexity and divergence, fragmentation and uncertainty. The solutions discussed mainly require government action.

Keywords: *2030 Agenda, Sustainable development goal 2, Sweden, Wicked policy perspectives, Collaboration, Governance challenges.*

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1. Introduction

Sustainable development is a concept that we often hear mentioned today and it has become a highly prevalent discussion topic in policy making during recent decades. It began to spread internationally in 1987 through the so-called Brundtland Commission report, where it was defined as *Development that meets the needs of the present without compromising the ability of future generations to meet their own needs* (Brundtland, 1987). The concept has developed from being a rather vague notion of ecological sustainability to being concretized first through the Millennium Development goals (MDGs) and then through the 2030 Agenda, consisting of the Sustainable development goals (SDGs) implemented in 2015 (Mensah, 2019,11). The agenda consists of 17 goals and 169 targets and aims at combining and interacting the social, environmental and economic dimensions of sustainable development (UN General Assembly, 2015).

The agricultural sector has been pointed out as being highly important for achieving the SDGs and as stated by the UN Food and Agricultural Organization (FAO), *food and agriculture lies at the very heart of the 2030 Agenda for Sustainable Development* (FAO, 2016, 8). It is mostly integrated in the Sustainable development goal 2 (SDG 2) which aims to *end hunger, achieve food security and improved nutrition and promote sustainable agriculture* (United nations, 2020, 26). This goal highlights the double challenge agriculture faces, meeting the rising food demand and creating food security, and at the same time increasing its sustainability and resilience to climate change. With coming decades of climate change combined with factors such as a growing world population and rising food prices, agriculture and food security will be affected in indefinite ways (IFPRI, n.d). Also, the ongoing covid-19 pandemic has shown how vulnerable the supply chains can be, highlighting the importance of creating stable food systems (OECD, 2020a). According to the latest data, the world is not at all on track to achieve this goal by 2030 (United nations, n.d), indicating that major work needs to be done in order to achieve the goal.

To succeed with implementing the SDGs, the agenda emphasizes a multi-governance perspective where all actors in society are to be included in the implementation process (OECD, 2020b, 214). However, there are no obligations for how this should be accomplished in practice, leaving all countries free to establish their own policies and plans based on their different national realities (UN General Assembly, 2015). The agenda is also seen as

inseparable and should therefore be implemented as a whole (Ibid, 61). As highlighted by Weitz, Carlsen and Skånberg (2018, 531), many countries seem to struggle with developing the action strategies needed in order to implement the agenda. Further complicating the implementation is the fact that the targets and goals interact, impact and counteract each other, and that interests might clash (Ibid), leaving the decision-makers having to face many value conflicts in prioritization (Hutton et al, 2018, 2). Distinguishing and clarifying how the agenda links to other established national goals and strategies is also highlighted as challenging (Bexell & Jönsson, 2016, 7).

These challenges in the implementation of the 2030 Agenda have received increased attention within research, where a major part of the studies focuses on examining synergies and trade-offs between the goals, in different ways (See for example: Pradhan et al, 2017; Mainali et al, 2018). Other studies focus more on the implementation aspects of the 2030 agenda by conducting case studies and examining how successful countries or regions are in implementing the agenda (Firoiu et al, 2019). Governance challenges and the multiple actors involved in the process has also received increased attention (see for example: Bowen et al, 2017, Glass & New, 2019). How these challenges are perceived, addressed and handled by key actors working with the practical implementation of the agenda has not received as much attention within the research. Especially when it comes to collaboration and governance challenges in different national contexts and related to certain specific SDGs. This is important to shed light on as countries adapt diverging strategies, plans and actions for implementing the agenda.

The Swedish government has emphasized that Sweden should be a leader in the implementation of the 2030 Agenda and an international role model in terms of economic, social and environmental sustainability (Regeringskansliet, 2018, 6). Sweden has favorable conditions for creating a sustainable society and based on an SDG index, measuring each country's overall performance on the SDGs, the country ranks within the top three (Regeringskansliet, 2020, 8). Despite this, the country still faces challenges in enhancing the implementation of the agenda into the policymaking process and there is a need for further improvements (SOU, 2019, 13). Sweden is thus an interesting case to examine more closely, in order to broaden the understanding of why a country so well placed to achieve the SDGs fails to succeed, and what the main challenges are. If countries that have favorable positions

in its implementation of the agenda fails to achieve the SDGs, it is not likely that any country will succeed. The complexity and challenges encountered in the work towards achieving the SDGs is likely to vary to some extent between countries, depending on their political and administrative system (Neby & Zannakis, 2020). Sweden, for example, has a system where the government agencies are organizational independent from the government and they therefore play an important role in the implementation of the 2030 Agenda (Regeringskansliet, 2021). They thus serve as relevant analysis units in this study. This system is likely to have an effect on how the agencies address and handle collaboration and governance capacity challenges. However, it is likely that countries with similar systems and favorable conditions for implementing the agenda, experience similar challenges.

Focusing on SDG 2 also appears highly relevant, since creating stable food systems is important in order to achieve the agenda, and because Sweden still faces major challenges when it comes to achieving this goal (Sachs et al, 2021). Clear contradictions also exist within the goal, which is likely to create great challenges in terms of value conflicts, prioritization issues and coordination between diverging stakeholder interests. The specified aim with this thesis will be presented after discussing the previous research within the field and further identifying the research gap.

1.1. Disposition of the thesis

The thesis is structured as follows; chapter 2 provides an overview of relevant research within the area, the research gap and the specified aim with this study. This is followed by a discussion of the theoretical framework that will underpin the analysis of the empirical material, and the research questions guiding the study. Chapter 4 provides a relevant background description of the 2030 Agenda, a brief description of the Swedish environmental quality objectives and concludes with a description of the relevant agencies working in the field. Chapter 5 deals with the methodological aspects such as the case selection, data collection, analytical process, ethical considerations and potential limitations with the study. Chapter 6 presents the analysis and results, followed by a conclusion and a discussion chapter. Lastly, the bibliography and the appendix are presented.

2. Literature Review

This chapter describes previous research that is relevant in relation to the purpose of the study. The chapter begins with more general research on contradictions within the sustainable development framework and the 2030 Agenda, followed by research on the governance challenges these conflicting objectives create and lastly a brief overview over research more directly linked to the sustainable development goal 2 is presented.

2.1. Contradictions within the SDG framework

Within the sustainability debate the center of attention has often been between the extent to which ecological goals are sacrificed to achieve economic growth. In a study by Howes et al (2017), reviewing 94 different studies on the failure to improve environmental sustainability, it is showed that economic, political and communication factors contribute to this failure. Gupta & Courtney (2016, 434) also highlights that *politics tend to make trade-offs in favor of the economy at the cost of social and ecological issues*. They examine whether this is also true in relation to the 2030 Agenda and the 17 SDGs and analyze a UN document outlining the goals and their targets. They conclude that the document in fact continue to emphasize economic growth over ecological issues (Ibid, 444).

The agenda has further received criticism for its unclarity, for its many goals and its weak enforcement. Many efforts have been made to conceptualize and assess the interactions among the SDGs, to deal with these unclarities. Most studies focus on examining synergies and trade-offs across all goals, showing the importance of identifying and tackling the ambiguities of the SDGs (See for example, Pradhan et al, 2017; Hegre et al, 2020). Pradhan et al (2017:1169 - 1170) for instance, examines the interactions between the goals based on statistics from 227 countries between 1983 and 2016. Their results show that there are generally more positive than negative relationships between the goals. However, the results also show that some SDGs, like for example SDG 3 and 12, demonstrates trade-offs in most parts of the world, while in some countries they rather have a synergistic relationship (Ibid, 1177 - 1178). These results emphasize the need to take into account the potential differences that could appear in various contexts.

Weitz et al (2017, 545) also highlights the importance of taking contextual factors into account when examining the synergies and trade-offs between the goals. They examine the interactions between the 17 SDGs in Sweden and also concludes that there are more positive than negative influences amongst the goals. Mainali et al (2018) focus instead on the four SDGs; 7, 6, 2 and 1 and use examples from six countries in South Asia and Sub-Saharan Africa. Their results also suggest strong synergy effects among the SDG targets but show that this slightly differs between countries and over time which is similar to Pradhan et al's findings on SDG 3 and 12. The study further conclude that SDG 6 has the highest number of potential synergies and SDG 2 has the most negative interactions. These studies highlight the need for creating a better understanding of how the SDGs interact with each other.

2.2. Conflicting objectives and governance challenges

Research on the more practical implementation aspects of the Agenda 2030 has often been examined in the form of case studies examining how well countries succeed with the implementation (see for example, Boto-Alvarez & Garcia-Fernandez, 2020; Firoiu et al, 2019) or focusing on how the agenda is implemented at, for instance, the local level (see for example, Jimenez-Aceituno, 2020). Several studies also focus specifically on the implementation of the 2030 Agenda in Sweden at the municipal level, company level and within the government office (see for example, Lindström & Hellsten, 2020; Lahdo & Shufig, 2019; Rosander, 2016). Governance challenges and the complexity of the many actors involved in the implementation process of the agenda has also received increased attention.

Bowen et al (2017, 91-92), for example, highlights three governance challenges that are essential for achieving the SDGs; creating inclusive stakeholder interactions over various sectors, dealing with trade-offs between the goals and making sure that there are mechanisms in place in order to hold the actors involved accountable. The study focuses on addressing these challenges from a more conceptual and normative point of view. Lisa-Maria Glass and Jens New (2019, 1) argue that there is a need for more empirical comparative research when it comes to governance challenges related to the SDGs. The authors focus on four aspects of governance: participation, policy coherence, reflexivity and adaption, and democratic institutions. They analyze data from 41 countries and their results suggest that participation and democratic institutions has a positive effect on the progress towards achieving the SDGs,

while there is no strong evidence for the importance of policy coherence. When it comes to reflexivity and adaption their results show a negative correlation (Ibid, 11). Numerous other studies have also attempted to examine the implementation of the SDGs across different governance levels and different contexts. Bornemann and Christen (2021) looks at the Swiss subnational governance context and examine the so-called Sustainability governance arrangements (SAGs) that has been developed over the past decades. They focus on how these governance arrangements are able to manage the 2030 Agenda since it implies taking into account new ways of thinking about sustainability. Their results suggest that none of the SGAs examined meets the new governance requirements needed. A study conducted by Abdi Abdirashid (2020) examine governance challenges in a Swedish context and assess how the Swedish government agencies work with the 2030 agenda. He focuses on the agencies coordination and what activities and mechanism they use to integrate the agenda policies into their activities. The results suggest that government agencies use several mechanisms such as collaboration, leadership and communication to enhance the implementation of the 2030 agenda in Sweden. Some obstacles for agency coordination, such as unclear mandates, time and resources are further highlighted.

Wong and Van Der Heijden (2019), on the other hand, highlight inter-ministerial conflicts and focus more specifically on conflict avoidance and how this affects the implementation of the SDGs in Germany, Finland and Czech Republic. They argue that there might be a risk that potential conflicts are hidden in order to achieve collaboration, or that an unwillingness to compromise can lead to consensus being reached based on the lowest common denominator (Ibid, 839). Their results suggest substantial levels of conflict avoidance in all of the three countries examined and especially in relation to environmental issues (Ibid, 840). These studies highlight the many implementation and governance challenges that needs to be solved in order for the world to succeed with achieving the goals in the 2030 Agenda.

2.3. Challenges concerning SDG 2

When it comes to studies more related to SDG 2, there are some important contributions to discuss related to the purpose of this study. Breitmer et al (2020, 142), for instance, highlight the fact that food regimes tend to be complex and fragmented, with a great number of various actors involved. These actors often have different norm and sustainability understandings which could create challenges in succeeding with implementing SDG 2. Their analysis focus on whether inter-institutional arrangements (IIAs) can enable actors to find shared sustainability understandings. Their results suggest that, even though there has been some success within these arrangements, there are still challenges in finding common understandings within the food system. Gil et al (2019) assess the SDG 2 indicators by illustrating the practical implementation of these in Nigeria, Brazil and the Netherlands. They highlight the challenges of addressing the interactions between targets and indicators and argue that there is a need for more flexible indicators. They further provide potential improvements.

Lipper, De Fries and Bizikova (2020, 1203) focus more specifically on potential synergies and trade-offs between different sections of the food system. They focus on the SDG 2 and so-called “blind spots”, which indicates that action towards achieving one target could affect other targets and thereby complicate the implementation process. They analyze the Voluntary national reviews (VNRs) of 24 countries with a high number of small-scale agricultural producers. Their results show that targets 2.1 and 2.2 receive the most attention and have clearer implementation strategies than target 2.3 and 2.4 (Ibid, 1207). In other words, the focus is more on productivity aspects than on sustainability. They highlight the importance of countries working together in order to build and develop the understanding for interactions between these aspects (Ibid, 1208). These studies highlight some of the challenges surrounding the implementation of SDG2, mainly in terms of contradictions within the targets, differences in stakeholders’ understandings and shortcomings with the indicators.

Although there is a lot more research on these topics, this literature review provides a thorough overview on the research within the field, based on the problematic challenges discussed in the introduction. The next section will discuss the research gap and the specified aim with this study.

2.4. Research gap and specified aim with thesis

As the literature review demonstrates, there is a large amount of research focusing on different challenges in the implementation of the 2030 Agenda, linked to the various challenges discussed in the introduction. A large amount of the research focuses on how goals interact with each other in different contexts, governance challenges that hamper the implementation of the agenda in many ways, as well as difficulties when it comes to implementing SDG 2. However, as the literature review reveals, there is not much empirical studies on how challenges are addressed and handled by key actors working with the practical implementation of the agenda. As discussed, Abdirashid (2020) touches upon this subject by focusing on coordination challenges in the Swedish agencies' implementation of the 2030 agenda. He mainly focuses on how the agencies integrate and coordinate the whole 2030 agenda into their daily operational mandates, and potential challenges that occur.

As the agenda requires a multi-level approach, I argue that there is a need for more studies focusing specifically on conditions and challenges for collaboration, from the perspective of key actors. As the perceived challenges may differ between different goals, sectors and policy areas, concentrating on specific SDG goals also seems highly relevant. This could contribute to the understanding of how future arrangements should take place. Focusing on Sweden as a case, and the implementation of SDG 2, therefore seems highly relevant in order to contribute with research within this area. As Sweden has an administrative model where the agencies are organizationally independent of the government, they play an important role in the implementation of the 2030 Agenda (Regeringskansliet, 2021, 20).

The specified aim of this thesis is thus to analyze how Swedish agencies address collaboration and governance challenges in their work towards achieving SDG 2, and the potential solutions they provide in order to solve these challenges. In order to achieve this objective, a more descriptive analysis of how the agencies organize their work related to achieving SDG 2 is required in a first step, focusing on established collaboration strategies, platforms and programs. As the research questions are based on the theoretical framework, they will be presented after the next chapter.

3. Theoretical perspective

In this section, the theoretical perspective that underlies the analysis of the empirical material is presented and discussed. The chapter starts with a brief description of complex policy problems, followed by theoretical perspectives that shed light on the governance challenges that may arise in relation to complex policy problems and how these challenges can be analyzed and understood. Lastly, a discussion on why these perspectives are relevant in relation to this study is presented. Based on this framework, an analytical tool is created for the coding of the empirical material, this will be presented in the Methodology chapter.

3.1. Wicked policy problems

To examine the complexity of organizing and coordinating the work related to SDG 2, challenges that arise when it comes to collaboration and how these challenges are addressed and handled by key actors, a theoretical perspective capturing these aspects is relevant. The concept of “Wicked” problems serves as a good point of departure. Wicked problems refer to highly disputed and debated policy areas where multiple actors are involved in the negotiation processes. These problems often involve disagreements on how to define problems and solutions and solving these problems require collaboration and coordination between different actors and levels (Christensen, Lægreid & Lægreid, 2019, 237). Within these policy areas, governments face major challenges in managing this complexity and finding common grounds and solutions, and to establish relevant governance processes to address these challenges (Head, 2014, 667). Sustainable development and the 2030 agenda are often described as clear examples of wicked problems (see for example, Eden & Wagstaff, 2021; Brønn & Brønn 2018). The complexity of food policies has also been defined as wicked, referring to the many diverging issues involved, and the multiple stakeholder interests attached, potentially creating contradictions and conflicts in the process of finding joint solutions (Peters & Pierre, 2014, 5).

The question of how to address these wicked problems has been discussed since Rittel and Webber (1973) published their article on the subject. As stated by Head & Alford (2015, 715) the concept has since then been considered across several scholarly disciplines like, for

instance, public management and governance (Head, 2008), natural resource management (Freeman, 2000), and health care policy (Blackman et al, 2006). The Wicked problems concept has also received criticism highlighting its lack of analytical precisions, creating confusion on how the concept is to be defined and used (Termeer, Dewulf & Biesbroek, 2019,176). Based on the original definition, by Rittel and Webber, these policy problems may seem more or less unable to solve (Head & Alford, 2015, 712). However, the concept has been developed and further combined with other theories, and the practical challenges associated with tackling wicked problems have received increased attention (Head, 2008:108). In order to establish a greater understanding of the factors making wicked problems difficult to handle, more analytically precise methods and tools have been developed to break down the characteristics into more specific categories (Head & Alford, 2015, Neby, 2019; Neby & Zannakis, 2020). The next section describes the theoretical perspective that will guide the analysis of the empirical material.

3.2. Wickedness and governance capacity

The main analytical framework on which the empirical analysis in this study is based on, draws its inspiration from Simon Neby's (2019) study focusing on wickedness and governance capacity challenges in local climate adaption in Norway (2019), and Neby's and Zannakis (2020) study comparing local climate adaption in Norway and Sweden. However, other relevant sources and perspectives will be used as a complement to these. The main focus in these studies is to examine the complexity of the many actors involved in the process, and the challenges this bring to the work with local climate adaption and preparedness in Norway and Sweden. The studies take its point of departure from the concept of wicked problems but rather focuses on wickedness on a small-scale. The analytical framework is based on the specified characteristics of wickedness: complexity, uncertainty, divergence and fragmentation. These dimensions grasp the challenges connected to multiple stakeholders, diverging interests and values, institutional complexity and scientific uncertainty (Neby, 2019; Neby & Zannakis, 2020) and therefore serve as appropriate characteristics for evaluating the collaboration and governance challenges in the agencies work towards achieving SDG 2.

When discussing wickedness problems in terms of *complexity*, this concerns the many diverging actors involved in the policy process with different organizational principles, goals and interests attached. As it is difficult for single actors to solve complex policy problems, they rely on collaborations which may result in overlapping, intersecting, competing and diverging decision-making areas. The degree of *complexity increases when the scales of proposed problems, solutions and impacts are diverse* (Neby, 2019, 30). Neby (2019, 36) highlights the importance of understanding how the problems are framed differently to grasp the complexity. For example, the results in his study showed that the municipalities framed local climate adaptation differently, both when it comes to the process of finding solutions and the final choices. This demonstrates that choices have a great influence on wickedness. Head (2014, 669) also highlight problematic aspects with framing and argues that wicked problems often tend to be framed in a narrower way rather than focusing on what is causing the problems, which affect the political choices and the solutions made.

The complexity is highly related to *divergence*, which relates more to the fact that mandates are spread across different levels and sectors, creating challenges related to conflicting aims, tasks and roles. This can, for instance, lead to conflicts between different parts of the administrative system (Neby, 2019, 30; Neby & Zannakis, 2020, 596). The actors diverging values, frames, perceptions and interests may not only vary but oppose and clash with one another (Dentoni et al, 2018, 336). There may also be tensions concerning how to tackle the problems, because the definition of problems may differ between different actors, or due to the division of tasks and roles being inconsistent and unclear (Neby, 2019, 30).

Neby's and Zannakis (2020, 604) study revealed problems with divergence, as the municipalities often received mixed signals from the agencies, leading to confusions and difficulties in the planning process. Actors also advocated different policy measures, where some focused on more economical aspects while others encouraged a greater focus on environmental science (Neby & Zannakis, 2020, 604). Since problem perceptions are likely to influence the choice of solution, there is an overlap between complexity and divergence (Neby, 2019, 30).

When discussing *Fragmentation*, this refers more to potential divisions between different policies and organizations. For example, some policy issues may be dealt with at different governance levels and sectors or by diverse organizations, creating a lack of clarity on how responsibility and accountability is distributed (Neby & Zannakis, 2020, 596). According to Neby (2019,30), fragmentation also concerns overlapping or underlapping accountabilities and silo-oriented measures. In the case of local climate adaption, Neby & Zannaki's results (2020, 606) showed a fragmented organizational field of public actors in both Norway and Sweden, as the work was divided amongst many different actors, levels and sectors.

The last wickedness characteristic, *Uncertainty*, refers to insecurities concerning policy actions and measures, and their effects (Neby, 2019, 30). Neby refers to Koppenjan & Klijn's (2004, 12- 13) description of three varieties of uncertainty: substantive, strategic and institutional. When discussing substantive uncertainty this concerns the availability of information and knowledge and the fact that different actors have different perceptions of the problems, causing them to understand the information differently. When focusing on the many actors involved in the policy making with their own perceptions attached, and the fact that this will lead to a variety of strategies among them, this refers to strategic uncertainty. Institutional uncertainty concerns the fact that the involved actors also come from different backgrounds with different organizational structures and networks which could further complicate the interactions. Uncertainty is also related to limited availability of information due to gaps in scientific knowledge.

These aspects create challenges in reaching a consensus on broad societal goals and further deciding what type of information and knowledge that is needed to address particular wicked problems (Dentoni et al, 2018, 336). As Neby & Zannaki's study (2020, 606) highlight, it is not always evident how knowledge could be used in practice and in the case of local climate adaption in Norway and Sweden, there were challenges with finding an adaptive framework to build shared knowledge and understandings. Thereby, managing to agree on broad goals and find the relevant solutions through appropriate governance processes was challenging. These wickedness characteristics helps us identify and understand the scope of wicked problems. The table below shows a summary of the dimensions.

Table 1. Wickedness characteristics

Complexity and divergence	Fragmentation	Uncertainty
<ul style="list-style-type: none"> • Many actors from diverging sectors and fields are involved in the policy process. • Conflicting aims and goals and no consensus on how to solve the challenges. • Diverse framings of the policy issues, both in terms of the solutions and options. • Diverging values, perceptions and interests 	<ul style="list-style-type: none"> • The organization sorts under a variety of different policy fields and institutional domains • Responsibility and accountability distribution across organizational forms is unclear • Overlapping or underlapping accountabilities • Silo-organizational structures 	<ul style="list-style-type: none"> • Insecurities in what the relevant policy measures are • Gaps and conflicting understandings in the knowledge base • Disagreements about the problems and solutions • Limited availability of information and how to use the knowledge in practice

Managing these kinds of problems and challenges demands governance and administrative capacity which is often referred to as *the ability of societal actors to work together in order to solve collective problems* (Phung Dang & Visseren-Hamakers, 2015, 2). There are varying descriptions of governance capacity and how to approach it. Lodge and Wegrich (2014, 10), for example, argues that capacities have to be understood in terms of four subtypes: delivery, regulatory, analytical and coordination capacities. *These capacities can be differently organized, financed and staffed, and they will vary according to functional needs.* Neby (2019) draws on these four capacities when analyzing local climate adaption in Norway and Neby & Zannakis (2020) focus on coordination capacity when comparing Norway and Sweden. When discussing **Delivery capacity** this concerns the ability to allocate resources, definitions of tasks and functions. **Regulatory capacity** rather concerns aspects related to control in terms of monitoring and audits and **analytical capacity** is the ability of actors involved to gather and use relevant knowledge and information.

As the main purpose with this study is to, from the perspective of responsible Swedish government agencies, examine the challenges and prerequisites for collaboration between diverging societal actors and how these challenges are addressed and handled, the main focus will be on the **coordination capacity** aspect. Coordination has for a long time been highlighted as an essential problem for public administration and policy. This capacity refers to the ability to bring diverging actors together, across organizations and sectors, in order to

achieve common measures, often in complex situations (Neby, 2019, 31). When dealing with wicked problems there is a risk of coordination underlap and overlap. This refers to situations where policy issues can either fall between the lines of organizations and thus become nobody's responsibility, or where policy challenges are of relevance to many different organizations and they all want to be involved in the policy making (Christensen, Laegreid & Laegreid, 2019). It is often argued that more or better collaboration and coordination between actors is needed in order to address complex governance challenges (Head & Alford, 2015, 725). However, there are some main challenges that needs to be taken into account. There might, for instance, be situations where stakeholders agree on the lowest common denominator rather than focusing on solving the problems, as it can be difficult to reach agreements. Identifying common frames for a problem could help solve coordination issues, however this could be very difficult and time consuming (Peters, 2018, 6).

The combination of these wickedness characteristics and the explained governance capacities forms a good basis for analysing the main challenges in achieving and implementing the targets within goal 2, and how these challenges are discussed and handled by agencies. Understanding the perspectives of key actors, the prospects for collaboration and shared understandings and the knowledge bases available can be helpful in future decisions for how the work should be organized.

3.3. Research questions

Based on the aim of the study and the theoretical framework, the following two research questions have been formulated that will guide the analysis. These questions are inspired by Neby's studies but are applied to another policy area and challenges related to SDG 2.

- *How do Swedish agencies organize and coordinate their work towards achieving sustainable development goal 2?*
- *From a wicked policy perspective, what are the main collaboration and governance capacity challenges addressed by the agencies and what solutions are discussed and provided?*

4. Background

In this section, relevant background information for the purpose of this study is presented. The section begins with explaining the Swedish environmental quality objectives and turns to a discussion more specifically on sustainable development goal 2 and the agencies that work with issues related to the goal.

4.1. The Swedish environmental quality objectives

In 1999 Sweden implemented 16 environmental quality objectives and 1 generational goal which aims at creating a stable environment for the future generations (Sveriges miljömål, 2021). The environmental quality objectives are shown in table 2 below and includes, among other things, creating a non-toxic environment, a varied agricultural landscape and a rich diversity of plant and animal life. The work towards achieving these objectives is connected to the 2030 agenda as it represents the ecological dimension of the agenda in Sweden (Naturvårdsverket, 2019, 6). The objectives describe the challenges that exist on the national level in Sweden and are more precise compared to the SDGs (Sveriges miljömål, 2020). According to a mapping conducted by The Swedish Environmental protection agency, SDG 2 is mostly linked with environmental quality objective 4, which aims at creating a non-toxic environment, and objective 13 focusing on creating a varied agricultural landscape as well as the generational objective (Naturvårdsverket, n.d).

Table 2. Sweden's Environmental Quality Goals

<ul style="list-style-type: none">• Reduced climate Impact• Clean Air• Natural Acidification only• A Non-Toxic Environment• A protective Ozone Layer• A safe Radiation Environment• Zero Eutrophication• Flourishing Lakes and Streams	<ul style="list-style-type: none">• Good-Quality Groundwater• A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos• Thriving Wetlands• Sustainable Forests• A varied Agricultural Landscape• A Magnificent Mountain Landscape• A Good Built Environment• A rich Diversity of Plant and Animal Life
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Source: Naturvårdsverket (2018) <https://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-8620-6.pdf>

4.2. Sustainable development goal 2

Sustainable Development Goal 2 is often referred to as the hunger goal and aims to *end hunger, achieve food security and improved nutrition and promote sustainable agriculture* (United nations, 2020:26). The UN has defined 8 targets and 13 indicators that specify the goals (see appendix 1). SDG 2 aims at creating a sustainable agriculture and food system, as well as increasing agricultural production. The goal also includes social and economic aspects in terms of providing better diets and nutrition and creating functioning agricultural markets. The targets that need to be achieved are wide-ranging and call for balancing competing challenges.

Previous studies have highlighted that there tends to be difficulties in achieving the sustainability targets in synergy with the production targets, as the productivity aspects tend to be prioritized, leading to negative impacts on the environment (see for example: Lipper, De Fries & Bizikova, 2020). Therefore, clashing interests and conflicts are likely to occur between actors. Further it has been highlighted that the implementation of SDG 2 takes place between two contrasting worldviews; one the one side a corporate model highlighting the need for large-scale industrial agriculture and short-term productivity based on technical solutions. On the other side, a vision of a small-scale production viewing food as a fundamental right, integrated with ecosystems and promoted by actors such as social movements (Prato, 2016). Compared to other goals within the agenda, the targets in SDG 2 might be especially difficult to achieve in synergy. Goal 6, which aims to *ensure availability and sustainable management of water and sanitation for all*, includes targets focusing on access, sanitation, quality and efficiency of water system (United nations, 2020:36). Like with all the 17 goals, there are many challenges in achieving these targets. However, as they are quite straightforward, they will possibly not meet the same competing challenges as in the implementation of SDG 2. As the study conducted by Fader et al (2018) showed, SDG 6 had a high number of potential synergies while SDG 2 had the most negative interactions, which could further indicate this.

There are also other factors, important to discuss, that likely impact the work towards achieving SDG 2. Although agriculture development often is prioritized, it tends to have a low position on policy agendas because other concerns are perceived as more important (Cohen, 2019, 175).

In Sweden, the main challenges regarding goal 2 include *tackling the populations increasing overweight and obesity, ensuring environmental sustainability and biodiversity in agriculture and strengthening all sustainability dimensions in the entire food chain* (Government Offices of Sweden, 2017, 20). All of these aspects discussed above, showing the diverging values, ideas and prioritizations that exist, highlights the complexity in succeeding with achieving SDG 2 in Sweden, as well as in the rest of the world.

4.3. Swedish Agencies work connected to SDG 2

The six agencies, and the County administrative boards, described in the table below, are the agencies whose work are most closely linked to SDG 2. This is based on the agencies assessments, commissioned by the government in 2016, of which goals and sub-goals their activities have greatest impact on, nationally and internationally (Regeringskansliet, 2016). The work of other agencies also links to SDG 2 in different ways, but these have not been included in this study as they do not have as strong direct impact as the agencies described below.

Table 3. Agencies work connected to SDG 2

The Swedish Board of Agriculture 2.3, 2.4, 2.5, 2.b, 2.c	<i>A sector agency for agriculture, and responsible for rural development. Major impact on the sub-goals within SDG 2 and responsible for the environmental quality goal “A rich agricultural landscape”.</i>
The Swedish Food Agency 2.1, 2.2, 2.3, 2.4	<i>Focuses on consumers conditions for environmentally friendly and healthy food and work with food producers and food exports. Also included in the work with the national food strategy.</i>
The Swedish chemicals Agency 2.1, 2.4	<i>Eu legislation, testing and supervision of pesticides and supervision of manufacturers. Also, mainly responsible for the environmental quality goal “A non-toxic environment”.</i>
Formas 2.3, 2.4, 2.5, 2.a	<i>National research council working with the environment, areal industries and community building, which is central to the knowledge building for most of the 17 goals. Funds research in agriculture, food, nutrition, consumption, rural issues, climate change, non-toxic environment and ecology that connects to SDG 2.</i>
The Swedish Environmental Protection Agency	<i>Responsible for following up and evaluating the effects of the common agriculture policy together with other agencies. Also guides and evaluates the work with the environmental quality objectives.</i>
The Swedish Agency for Economic and Regional Growth	<i>Works with coordinating the efforts in the food sector and works for a sustainable and competitive food production by promoting collaboration between all actors in the food chain.</i>
The County Administrative Boards 2.3, 2.4, 2.5, 2.a	<i>Several of the assignments concern the agricultural sector and SDG 2. Mostly agriculture, rural areas, environmental protection and climate adaption. They also provide compensation within the rural development program.</i>

5. Methodology

This chapter describes the selected research design, data and analytical methods that have been used to conduct the analysis and answer the research questions. The chapter starts by presenting the research design, case selection and data collection followed by the analytical, operationalization and analytical tool. The section ends with a discussion on ethical considerations and potential limitations with the study.

5.1. Research design

The study is based on a case study design. Since the main goal is to highlight perspectives and provide in-depth knowledge of the case, this demands a qualitative approach, which allow for more detailed data. The study is therefore based on a qualitative case study design. A case study can be identified as an intensive study of a single case where the researcher conducts in-depth studies of, for example, a society or an organization (Halperin & Heath, 2017, 235, Bryman, 2011:62). On the basis of the chosen research questions in this thesis, the case study is well suited as it enables an in-depth study of how Swedish agencies coordinate and organize the work connected to SDG 2, and how they address and handle potential challenges. The method also enables using several types of empirical sources. To avoid the study becoming too one-sided, a so-called data triangulation has been applied, where both official documents and interviews were conducted as empirical material. By using material from several sources, this increases the reliability of the data and provides more complete data sources and thereby results in more credible findings (Halperin & Heath, 2017, 175, 334).

5.2. Case selection

When picking the relevant cases in this study there were several factors that influenced the choices. The main reason for choosing Sweden as a case country was discussed in the introduction section. As already highlighted, the country still faces major challenges in succeeding with implementing the SDGs. If countries that have favorable positions in its implementation of the agenda fails to achieve the goals, it is likely that none will succeed. It is therefore interesting and important to further examine challenges encountered by key actors in these countries. Another reason why Sweden is a relevant choice in this study is that it

facilitates access to relevant material and data. Due to a lack of time and resources the study focuses on how government agencies organize the work as well as how they address and handle challenges, other actors were not included in the analysis. As already highlighted, the government agencies in Sweden have a central role in the implementation of measures within the environmental work and the 2030 Agenda (Regeringskansliet, 2021). They also have a great potential to work in a cross-functional way as they have a general task to cooperate (Ibid, 2021, 22) and they often guide other actors in the work for a long-term development (Sveriges miljömål, 2021). They thus serve as good analysis units based on the purpose of this study. The selection of the government agencies included in the study was based on whether their main work has a strong link to SDG 2 and the related environmental quality objectives. In total, six agencies and two county administrative boards were chosen (see background section 4.3), some of which have a more direct connection to the goal than others.

5.3. Methods for gathering data

To answer the research questions, official documents as well as interviews conducted with relevant agency employees were analyzed. Collecting the data was done in several steps based on the purpose of this study and the two research questions. The first step was to map how the agencies organize their work towards achieving SDG 2. This was done primarily by examining the selected agencies websites and assessments of their work connected to the 2030 Agenda, as well as reports describing how their work connects to the sub-goals within SDG 2 and the relevant environmental quality objectives. Official documents from the government describing the agencies roles in relation to the SDG 2 and evaluating Sweden's progress towards achieving the 2030 Agenda were also included, as well as evaluations of the environmental quality objectives (see appendix 4). Based on the mapping in the first step, the relevant strategies, goals and programs connected to SDG 2 were identified, and material related to these were conducted from the agency's websites. Further a so-called snowball strategy was used. This type of selection is a technique where the analysis units we collect can help us find further relevant units (Esaiasson, Gilljam, Oscarsson, Towns & Wägnerud 2017, s. 190). As it was difficult to find relevant material on some of the agency's websites, this strategy led to a more comprehensive selection of documents. To get a wider perspective and receive information that were difficult to find in the written material, interviews of relevant agency employees were conducted as a complement. This also provided an opportunity to

give a more comprehensive picture of the agencies work and give the informants the opportunity to reason about the issues and challenges. A goal-oriented selection was used, which means that the selection was made based on a desire to interview people relevant to the research questions (Bryman, 2011, 434). The six agencies described in table 3, in the background section, as well as two County Boards were contacted for interviews. This was done by sending an email to the agencies customer services explaining the purpose of the study and further asking for contact information to relevant employees working within the field, resulting in a total of six interview candidates. Before the interviews were conducted, an interview guide was constructed (see appendix 3) based on the analytical tool presented in the next section. The questions were also sent out to the informants in advance so that they could prepare if necessary and to get as much information as possible out of the interviews.

When conducting the interviews, a semi-structured method was used, which means that the questions are prepared in advance, but also provides flexibility during the interview where you can ask new questions and follow-up questions. This method also provides you with the opportunity to change the order of the question and let the conversation run a bit more freely (Halperin & Heath, 2017, 313). Due to the covid-19 pandemic all interviews were conducted digitally in form of video calls.

1.1. Analytical process

When analyzing the empirical material, the choice of method fell on a content analysis as this method is suitable for analyzing different types of texts and interviews (Halperin & Heath, 2017, 376). Since the aim with this study is to conduct a more detailed and in-depth analysis of official documents and interviews, the choice fell on a qualitative approach as this method provides the opportunity to obtain a deeper interpretation of the material rather than calculating or measuring concepts within the text (Esaiasson, Gilljam, Oscarsson, Towns & Wägnerud, 2017, 198). After collecting all the empirical material an overall reading of the documents was carried out to get an understanding of the content and notes were made to get clarity in what was expressed in the texts. This helped in order to simplify for the next step and further led to some parts of the material being removed as they were not as relevant as they seemed in the collection of the data. The interviews were also transcribed, and relevant notes made in the margins. When the selected material was clarified, then the coding was

conducted based on the categories and questions in the analytical tool presented below (see table 4). In this step the documents were read more carefully, and the texts was coded into categories by the theme, numbers and color codes displayed in the analytical tool. The material was then compiled based on its unique color and number code. After coding all the empirical material, the analysis of the content began.

1.2. Operationalization and analytical tool

In order to use and measure the theoretical definitions and perspectives, these first need to be operationalized into operational indicators. It is of great importance that this is done clearly so that the study actually measures what it claims to be measuring, and thus crucial for the credibility and conclusions of the study (Esaïasson, Gilljam, Oscarsson, Towns & Wägnerud 2017, 58). In order to measure and understand the collaboration and governance challenges from the wickedness perspectives, an analytical tool was created (see figure below). The analytical tool is divided into the four different wickedness characteristics: complexity, divergence, fragmentation and uncertainty. The complexity and divergence characteristics are combined into one section as they overlap in many ways.

The analytical tool was further designed as questions based on the theoretical framework but were reformulated to fit the purpose of the study. This made it possible to, from a wickedness perspective, examine the addressed collaboration and governance capacity challenges related to the agencies work connected to SDG 2. When analyzing the text based on the questions, the challenges described in the relation to the questions were also included and analyzed. As an example, when the question on whether many actors are involved in the work on SDG 2 or not was analyzed, the challenges described in relation to the question were also included.

After the coded material was compiled into number and colors, it was divided into the categories; *yes*, *to some extent* and *no*. If the vast majority of the texts and interview responses described the question as being accurate, then the response was coded into the *yes* column, the same was true for the *no* category. The *to some extent* category was developed to capture potential responses where the text or interview responses would express something as *to some extent* themselves, rather than *yes* or *no*, or when the opinions widely differed. As an example, if the question of whether they receive clear governmental directives was answered with mixed answers of both *yes* and *no*, or as unclear, in the documents and in the interviews, this

was coded into the *to some extent* column. It was then discussed in the analysis how the opinions differed and to what extent.

Table 4. Analytical tool

	Complexity and Divergence	<i>Yes</i>	<i>To some extent</i>	<i>No</i>
1	Many different actors from diverging sectors, levels and fields collaborate in the work connected to achieving SDG 2			
2	Clear established strategies and platforms to facilitate this collaboration exist			
3	it is perceived to be clear how the sub-goals within goal 2 connect with already established strategies and goals			
4	potential goal- and interest conflicts between actors are raised and discussed (for example, conflicting aims between actors concerning increased production and sustainable agriculture, or conflicting goals)			
5	There are established strategies and frameworks for how to deal with such potential conflicts			
	Fragmentation	<i>Yes</i>	<i>To some extent</i>	<i>No</i>
1	The work connected to achieving sustainable development goal 2 extend across different sectors and organizations			
2	There is a variety in organizational types that deal with the same thematic issues. For example, across governance levels, organizations and sectors.			
3	Is the work connected to different sub-goals within goal 2 divided between different actors and if so, is this division clear?			
4	There is a sense of clarity about what the agencies roles and responsibilities are in the work connected to SDG 2			
5	The agencies have received clear directions from the government			
	Uncertainty	<i>Yes</i>	<i>To some extent</i>	<i>No</i>
1	There are insecurities concerning the effects of policy measures needed to achieve SDG 2			
2	There are gaps and conflicting understandings in the knowledge base in relation to SDG 2			
3	There is limited availability of information and knowledge within the policy field related to SDG 2			
4	It is unclear how the knowledge could be used in practice			
5	Actors from different knowledge domains are included in the work			
6	There are disagreements on the nature of the problems			

1.3. Ethical considerations

The main ethical considerations in this study are in relation to the interviews and the informants. According to the Swedish research Council there are four main ethical requirements that social sciences research in Sweden must comply with. These are the information, consent, confidentiality and utilization requirements. In this study the information requirement was met as the respondents were thoroughly informed about the purpose of the study, as well as their role and contribution to it, when the request for participation was made (Vetenskapsrådet, 2002, 7). When conducting the interviews, a verbal approval from the informants were given and they were also informed that they could stop the participation at any time, thus meeting the consent requirement (Ibid, 9 – 10). Since the study does not deal with any ethically sensitive data and the informants were informed that they would be anonymous in the study, the confidentiality requirement was met (Ibid, 12). The choice to keep the respondents anonymous was made as the focus with the study is to highlight how the agencies organize the work and address the challenges, and not on the individual persons perceptions or statements. The informants will therefore be cited as respondent 1-6 in the study. The last utilization requirement was met as the information was only used in the purpose of the study. The material was further only handled by the author of this thesis and was deleted after the study had been completed (Ibid, 14).

1.4. Limitations

There are several possible limitations with this study that needs to be discussed. When it comes to case studies a particular limitation is the difficulty of making generalizations based on the results. Without repeating the case studies elsewhere, it can be difficult to assess what has been learned from the results (Halperin & Heath, 2017, 237). As this study focuses on Sweden and relevant agencies as a case, no claim has been made that the results will be the same for other actors or countries. The aim is rather to gain a deeper understanding of the implementation of SDG 2 in the Swedish context. However, as the 2030 Agenda and the SDGs are global and often the work is conducted in a holistically matter, it is likely that key actors in other countries are experiencing similar challenges which could make the results of this study relevant even for other countries. Another potential limitation with this study is the selection and number of interview candidates included. A total of six interviews were

conducted as a complement to the analysed documents, providing a more complete picture of challenges and potential solutions in the agencies work towards achieving SDG 2. However, more interviews including other agencies as well as additional employees working within the agencies, could have given a more comprehensive picture of the issues and provided additional relevant aspects. This was difficult to accomplish as some of the contacted agencies were unable to participate in the interviews, and because of the time-limit of the study.

An additional weakness with a qualitative approach and a content analysis can be reliability. This refers to the repeatability or consistency of your findings. A study is reliable if anyone else following the same procedures would get the same results (Halperin & Heath, 2017, 385). In this study this has been dealt with by providing a thorough and precise description of how the data was collected, how the theoretical aspects were operationalized and how the analysis was carried out.

2. Results and analysis

This chapter describes the results and the analysis of the study and is divided into two main sections. The first section examines the collaboration strategies, platforms and initiatives established to answer the question on how agencies organize the work connected to achieving SDG 2. The second section focuses on the main collaboration and governance challenges addressed by the agencies, based on a wickedness perspective, and proposed solutions for handling these.

2.1. Organizational structure for implementing SDG 2

The governmental agencies play an important role in achieving the goals of the 2030 Agenda. They have a general task to collaborate with other actors in their work, and thus have a great potential to work across sectors. Many of the agencies have directives within different areas of the agenda, and some agencies also have more central mandates based on their areas of responsibility. The Swedish Environmental Protection Agency, for instance, is the managing agency for the environmental target system (Regeringskansliet, 2021a, 22), and the Swedish Board for Agriculture has a major impact on SDG 2 while also being responsible for the environmental quality goal *A rich agricultural landscape*. As shown in table 3, in the background chapter, the work of the agencies is linked to different sub-goals of SDG 2, but they also interact and collaborate to a large extent on these sub-goals. The work of the agencies also falls under different departments as each department has a number of agencies attached to them (Regeringskansliet, 2021b).

When conducting the analysis and mapping the organization of the work, it became clear that there are many diverging actors who collaborate within the food and agricultural sector, in order to create a sustainable food system. There are many collaboration projects and initiatives among the agencies alone, as well as many collaborations within and between private actors, agencies, organizations and other actors (Jordbruksverket, 2021:3, 38 - 39). The next sections will describe the main strategies, collaboration platforms and initiatives established that connects to the agencies work of implementing and achieving the SDG 2 targets in Sweden.

2.1.1. Collaboration amongst agencies

When it comes to collaboration platforms between agencies related to the 2030 agenda and the Swedish environmental quality goals, the so-called Environmental Council and the DG-forum are described as two influential platforms. The former was established by the government in 2014 with the aim at contributing to the work of achieving the environmental quality goals, and the council consist of managers of 18 agencies (Sveriges miljömål, 2021). The work within the council includes a program area called *Synthesis work on a sustainable food system*. This program area aims at increasing consensus among participating agencies on what characterizes a sustainable food system in Sweden, and the main changes that need to be done in order to get there. The council also analyze how nationally decided strategies and action plans can support these changes (Miljömålsrådet, 2020, 20).

The DG-forum was initiated by several agencies in 2016. The platform is not connected to the SDG 2 specifically but are nonetheless relevant to highlight as the forum collaborates on aspects concerning the whole agenda. The forum aims at increasing participants knowledge of the 2030 agenda and to seek ways to collaborate between agencies in order to achieve the agenda, by exchanging experiences and learning from each other (Folkhälsomyndigheten, 2021). Representatives of the agencies involved in the forum express that the forum have made it possible for them to identify challenges concerning the interaction of goals and sub-goals that extends across agencies and departments (Statskontoret, 2020, 57).

There are also other important networks and collaboration platforms between the agencies. The Swedish Environmental protection agency, for instance, coordinates a network of 26 agencies with the aim to propose measures for further developing the work with environmental issues (Regeringskansliet, 2021a). Since much of Sweden's agriculture policy is governed by the EU's common agricultural policy (CAP), several agencies have been tasked, since 1996, with evaluating this policy in a national context through a program called CAP & Sustainability. The program has since then been broadened to incorporate the 2030 Agenda and it aims at contributing to easier achieving, amongst others, the national environmental quality objectives and other relevant national strategies that will be discussed below (Jordbruksverket, 2019:20). These strategies and platforms give an overview over how agencies collaborate among each other. There are of course other strategies and initiatives

connected to SDG 2, however, these are the most frequently discussed strategies in the analyzed documents as well as highlighted in the interviews.

2.1.2. Multiple-actor collaboration

When it comes to multiple-stakeholder collaborations in the policy field related to SDG 2, the mapping displays a number of different strategies. The Swedish national food strategy is described as a highly important strategy for creating a sustainable food system and achieving SDG 2 in Sweden (Naturvårdsverket, 2020, 347; Regeringskansliet, 2018, 13). This strategy aims at increasing the food production by creating a competitive food chain and at the same time achieve the national environmental objectives. This could lead to a higher level of growth and employment while at the same time contributing to sustainable development. Reduced food waste is also an important part of the strategy (Jordbruksverket, 2021b, 13). The strategy brings together both private and public actors to create a better understanding and consensus within the Swedish agriculture sector (Ibid, 127). The agencies have different responsibilities within the strategy where, for example, the Swedish Board of Agriculture is responsible for the follow-up and evaluation reports of the strategy (Ibid, 127), while the Swedish Agency for growth is responsible for coordinating the work by promoting cooperation between all actors in the food chain (Tillväxtverket, 2021). There are also regional food strategies where the County Administrative Boards play an important role (Jordbruksverket, 2021b, 127).

As part of the Food strategy, several investments are also made in demand-driven research, including a national research program for food. This program is a platform for collaboration and coordination of food research in Sweden (Formas, 2019, 40). The increase in this type of research creates better conditions for innovation and development towards a sustainable and competitive food system (Ibid, 12). A similar strategy is the EU strategy *From farm to fork*, which aims at making the EU food system a global standard for sustainability (Jordbruksverket, 2021:3, 51). The Swedish food strategy focuses more on advice, collaboration and conditions for achieving the goals, while the From Farm to Fork strategy focuses more on establishing new rules for the work. The strategy also adapts more of a top-down perspective as the implementation is based more on legislation and rules than on collaboration (Unell, 2020).

Another important part of the work is the various support systems provided. Many of these are provided within the Swedish Rural Development program where the goal is to create an attractive countryside. The support within the program will contribute to, amongst others, environmental and climate goals, competitiveness in agriculture and the development of new jobs. Support can for example be given to farmers for their environmental work efforts. The program also includes support in form of advice for developing collaborative projects (Jordbruksverket, 2019, 8 – 9). Within the program there is also a strong focus on innovation and collaboration, through the so-called European Innovation Partnerships (EIPs). The EIP implies a new way of working by trying to strengthen the ability to innovate and collaborate in the Swedish countryside (Regeringskansliet, 2020, 92).

Three additional relevant programs discussed both in relation to achieving SDG 2 and the related environmental quality objectives, are the *Program for Biodiversity in Intensively farmed Landscapes*, the *Focus on Nutrition's program* and the *Program for Diversity of Cultivated Plants*. These collaborative initiatives aim at giving advice and support in different ways, focusing on, amongst others, biological diversity and reduction of emissions of greenhouse gases (Naturvårdsverket, 2020, 347, Greppa näringen, 2021, Jordbruksverket, 2019:25). The program for diversity of cultivated plants, for instance, is a networking program between different actors. The formal responsibility rests with the Swedish Board of Agriculture but the work involve actors such as other government agencies, companies, organizations and associations (Jordbruksverket, 2019:25). There are also various competence centres, collaborative functions for work against antibiotic resistance and web platforms established that connects to the work around SDG 2 (Jordbruksverket, 2021:3, 27).

The results of the analysis on how the agencies organize the work related to SDG 2 show that the work integrates through many different strategies, programs and platforms. Different agencies are responsible for different areas and strategies and these interact in many ways. What becomes clear is that there is no clear coherent platform or strategy for the food system, the work is rather organized and coordinated through a divided organizational field. There are of course many other strategies that also relates to SDG 2, however the ones described above are the ones frequently discussed in the empirical material and gives a great overview of how the work is organized. The table below shows a summary of the strategies discussed in this

section. The next section will take a more analytical departure and analyze the main challenges that the agencies address and how they try to handle these challenges.

Table 5. Summary of results research question 1

Collaboration between agencies	Multiple-actor collaboration
<ul style="list-style-type: none"> • DG Forum • The Environmental Council • Environmental quality objectives network • CAP & Sustainability 	<ul style="list-style-type: none"> • The national and regional Food strategy • From Farm to Fork • The Rural Development programs • National research program for food • Program for biodiversity in intensively farmed landscapes • Focus on Nutrients • The program for diversity of cultivated plants <p><i>Others; Competence centers, collaboration for work against antibiotic resistance, web platforms</i></p>

2.2. Wickedness characteristics

This section presents the more analytical part of the analysis, focusing on what the main collaboration and governance capacity challenges addressed by the agencies are, based on a wicked policy perspective, and the solutions discussed and provided in order to try to solve these challenges. The section will be divided and discussed based on the wickedness characteristics.

2.2.1. Complexity and Divergence

Complexity and divergence concerns, as discussed in the theoretical framework section, the many actors involved in the policy process all with different principles, goals and interests attached. It also concerns distending mandates across levels as well as conflicting aims, tasks and roles. High levels of complexity and divergence can create problems in form of misunderstandings and confusions and lead to failure and difficulties in the policy planning process. As the analysis of the first research question demonstrated, there is an incredible number of actors involved in the work towards creating a sustainable food system and

achieving SDG 2 in Sweden. While the 2030 Agenda may have had an impact on the number of actors involved, this is not a new phenomenon as the food sector has long been characterized by fragmentation (Tillväxtverket, 2018, 49, Respondent 3). Thus, creating major collaboration and governance challenges. The perceived challenges of coordination and collaboration differ to some extent between agencies and in relation to different strategies and programs.

In the first part of the analysis, it became clear that there are a number of different collaboration platforms established and many attempts to create partnerships between different actors. However, based on the interviews and documents analyzed, these seem to focus mainly on collaboration between public actors while partnerships actually involving civil society or companies are rarer. One of the respondents claim that one reason for this is that some of the actors are not always interested in participating in these partnerships, due to economic priorities. Or because the work is organized within large geographical areas, making it difficult to involve all parties (Respondent 5). As an example, the work on the food strategy is carried out at the regional level and it is sometimes unclear who the coordinating partner is. The regional strategies also differ in terms of levels of collaboration (Jordbruksverket, 2021:3, 42). However, most of the agencies seem to agree that the cooperation challenges are not due to a lack of interest but are rather affected by other factors. Lack of time and resources are identified in the analysis as significant factors, similar to the results suggested in Abdirashid's (2020) study. As one of the respondents express: *How can we solve all the world's problems when everyone's calendars are already full?* (Respondent 4).

It also takes a lot of resources to create collaborative platforms that include many divergent actors. According to some informants, the established structure and system does not really create opportunities for collaboration as it requires time for long-term preparation and resources that do not really exist today (Respondent 1, Respondent 4). Sometimes the agencies are also given tasks with short time-limits, creating prioritization problems. This could potentially result in the agencies not taking the time to cooperate with others (Jordbruksverket, 2021:3, 42). A further problematic aspect described, is the fact that it is not always clear how the 2030 Agenda and SDG 2 relates to other national strategies and goals, which can create confusion in the organization and coordination of the work (Respondent 6).

This became evident when conducting the analysis, as it was often challenging to discern how different strategies and initiatives related to each other. Based on the analysis of the organization of the work, it is clear that there have been many attempts in establishing strategies and platforms to make collaboration possible. However, there is currently no real cohesive platform when it comes to collaboration around sustainable food systems. According to reports based on interviews with agencies, they have expressed the need for such a coordination function, where both public and private actors can collaborate. They highlight that this could establish a greater consensus on goals and action plans and thereby a better coordination throughout the food system (Jordbruksverket, 2021:3, 45).

When so many diverging actors are working together on the same issues, it is more or less inevitable that goal and conflicts of interest arise. Since the 2030 agenda is very broad and promotes a holistic approach, this creates challenges on how to prioritize and work with all the goals and the targets at the same time (Respondent, 5, 2, 4). The challenges of balancing different goals, like for example the climate impact of beef production versus the need for animals to maintain biodiversity, is highlighted in the reports. The difficulties in balancing different goals are often due to different interpretations of the phrasing of the goals (Jordbruksverket, 2021:3, 43).

Some of the informants also expressed difficulties regarding these challenges. The structure itself is highlighted as being very goal oriented and conflict-seeking. We have, for example, a rural development program that is supposed to promote competitiveness and production, and then we have various types of environmental support and payments that are supposed to compensate for this (Respondent 4). With different strategies working with different conflicting aspects, this increases the risk of not solving these contradictions properly. Another challenge highlighted is that the many diverging targets, and stakeholder interests attached, could lead to agencies selecting to work with certain “easier” issues, in order to report that they are working with the agenda, but without making any major contributions (Respondent 4). The lack of analytical tools and clear methods for visualizing and managing such synergies and conflicts between different policy areas, were expressed in an evaluation report of Sweden’s work with the agenda published in 2017. Today several actors have started working on developing such tools and one of them is the so-called SDG synergies program (Regeringskansliet, 2021a, 119). Based on the analysis there is no clear established platforms

or methods for managing such conflicts between different interests and actors, rather some internal work within some of the agencies. One of the informants express that there are no ultimate solutions for how to handle these challenges yet, but they have some formal forums that interact and have clear governance structures and there are models for collaboration based on theories that they use in their work (Respondent 1). Another informant highlight that they don't have any clear strategies for this yet, but it has become clear lately that this is an issue that needs to be dealt with by the agency in a greater extent than it is today (Respondent 2). One of the informants also state that we sometimes see and discuss these issues in the wrong way. As an example, the question whether we should eat animals or have open landscapes, may seem like a giant conflict at the aggregated level, but looking at individual landscapes it may not be a conflict at all in that way. We therefore need to take into considerations different national aspects and contexts when talking about these challenges (Respondent 4). We also need to include the political aspects in the discussion as the issues very much concerns political decisions and power issues which we talk very little about.

When discussing these challenges, we often focus on discussing numbers, science and money and leave out political and value-based questions and how we actually want the society to be shaped (Respondent 4).

The results from the analysis shows that the policy field and work towards SDG 2 display characteristics of complexity and divergence (see figure 6). The many actors involved in the food sector create problems and coordination challenges and it is, in many ways, difficult to find common grounds. The main challenges addressed by the agencies seem to lie in the structure itself and the lack of time and resources to handle the challenges. The lack of a clear unifying platform in the food sector is also expressed as problematic, as it risks leading to a further fragmented system with many diverging strategies and goals, creating additional degrees of complexity and divergence. There are also challenges in how SDG 2 connect with already established strategies and goals. When it comes to goal and interest conflicts, this is a widely discussed challenge but there does not seem to be any clear strategies or platforms for dealing with them yet.

Table 6. Complexity and Divergence results

Complexity and Divergence	Yes	To some extent	No
Many different actors from diverging sectors, levels and fields collaborate in the work connected to achieving SDG 2	X		
Clear established strategies and platforms to facilitate this collaboration exist.		X	
It is perceived to be clear how the sub-goals within goal 2 connect with already established strategies and goals.		X	
Potential goal- and interest conflicts between actors are raised and discussed.	X		
There are established strategies and frameworks for how to deal with such potential conflicts.			X

2.2.2. Fragmentation

Fragmentation rather concerns the tensions between policy priorities and actors, overlapping or underlapping accountabilities and policy issues being sorted across governance levels and organizations. Making it unclear how responsibility and accountability is likely to be distributed. The analysis shows that the work connected to achieving SDG 2 extends across many different sectors and organizations and there are also many different actors and organizations dealing with the same thematic issue. For instance, there are many different agencies working within the food sector, but it is not always clear how the work is distributed. As expressed by one of the respondents:

If we talk about how the schools work with food, it's about education policies, if we discuss how food comes to the table this concerns agricultural policies, and if we want to talk about marketing and regulation, this is consumer policies. In fact, most of the policy areas have something to do with the food sector creating many challenges in coordinating the work (Respondent 2).

This quote demonstrates the complexity and fragmentation in the work towards achieving all the sub-goals within SDG 2, and creating a sustainable agriculture and food system. The agencies also sort under different departments and the cooperation between agencies under these departments, varies. The Food agency, for instance, is responsible for many issues that also lies under other departments which results in cooperation's with agencies outside of its own department. The demarcation between certain agencies responsibilities can therefore be

difficult to distinguish (Jordbruksverket, 2021:3, 41). With this fragmented system, some of the agencies feel that their responsibilities are unclear and that they sometimes receive questions and tasks which they do not really have much power to influence. Therefore, it is highlighted that there is a need to establish a greater consensus between all departments so that the agencies can be steered towards the same direction (Respondent 2 & 4). There is also some ambiguity concerning the roles of various agencies in the work. As expressed by one of the informants, the agencies often get a lot of assignments of the same character and very similar to each other, but from different departments and from different central agencies. This can take a lot of time and resources to sort through (Respondent 4). If the agencies feel that it is unclear what their role and responsibility in the work is, it also becomes difficult to include other actors in the work, and to be clear about what their role is. As one of the informants put it:

If we are to work with for example agriculture, it must be very clear to the individual farmer what the role of that person is in all this, we cannot throw down 16 environmental quality goals and all of the 2030 Agenda indicators on their kitchen table, and expect them to work with it, it does not work (Respondent 4).

The fragmented system also creates silo organizational structures, which creates challenges in working with the agenda holistically and to achieve the targets in synergy (Respondent 4). A wish from many of the agencies is that the departments to a greater extent include all agencies that cooperate in an assignment, instead of just the responsible agency. This could help prevent misunderstandings regarding the agencies areas of responsibilities (Jordbruksverket, 2021:3, 42). There is also an expressed wish that the agencies particularly important for implementing the 2030 Agenda in Sweden, should get clearer directives and roles defined by the government (Statskontoret, 2020, 9). The government should therefore specify responsibility for sustainable food systems in the government instructions and regulatory letters (Jordbruksverket, 2021:3, 44).

When it comes to the question of whether the agencies feel that they have received clear directives from the government, there are somewhat divided opinions. One of the informant's states that it is as clear as it can be and that it is good that the agencies themselves is allowed to plan and control for much of the work. Another respondent argue that *it is clear, very clear, that we should work with the agenda, however, it is not clear how this work should be carried out and how we shall prioritize* (Respondent 2). Several agencies would like clearer directives and writings on how their current assignment should support the work with sustainable food

systems in their government assignments (Jordbruksverket, 2021:3). In relation to the whole 2030 Agenda, and not only SDG 2, some concern has also been expressed regarding the agencies getting too many general assignments where they, as an example, should report how they contribute to the 2030 Agenda. This type of assignments make it very unclear how they should organize the work and could potentially lead to a variation in ambition between the agencies. It is also not a given that the agencies will prioritize initiatives where they can contribute the most (Statskontoret, 2020, 56).

Since the work towards achieving a sustainable food system involves national strategies such as the food strategy and the rural development program, as well as other smaller strategies, and also connects to the environmental quality goals, it is sometimes difficult to get a proper overview of how the work is done and how responsibility is divided. This could create challenges with everyone's responsibility becoming nobody's responsibility (Jordbruksverket, 2013:31, 20). When conducting the analysis and mapping how the work is organized, it was sometimes very challenging to understand how the different strategies linked to each other and further to SDG 2. It is also highlighted that the initiatives and strategies established need to be sustained, monitored and further developed (Respondent 1).

The analysis shows that the food sector and the work connected to achieving SDG 2 is clearly fragmented, creating major challenges with establishing successful collaborations (see table 7). The main challenges seem to lie in the fact that the agencies feel that they do not receive sufficiently clear mandates from the government and departments, which sometimes creates difficulties in discerning where responsibility lies and how roles are allocated. Similar to Neby's results we can therefore not speak of a "food sector" in organizational terms. The system is rather fragmented with the agencies having distributed mandates and responsibilities within a complex system.

Table 7. Fragmentation results

Fragmentation	Yes	To some extent	No
The work connected to achieving SDG 2 extend across different sectors and organizations.	X		
There is a variety in organizational types that deal with the same thematic issue. For example, across governance levels, organizations and sectors.	X		
Is the work connected to different sub-goals within SDG 2 divided between different agencies, and if so, is this division clear?		X	
There is a sense of clarity about what the agencies roles and responsibilities are in the work connected to SDG 2		X	
The agencies have received clear directions from the government.		X	

2.2.3. Uncertainty

When speaking about uncertainty it concerns potential insecurities about the effects of policies and to variability in demands placed on the actors. There might be gaps or conflicting understandings about the nature of the problem and there might also be gaps in scientific knowledge and how to use the knowledge in practice. Based on the analysis, most informants seem to agree on the fact that there is an enormous amount of knowledge within the area. One respondent state that the knowledge base concerning how to design a society and a system that promotes sustainable eating habits and sustainable food environments, have exploded in recent years (Respondent 2). The challenges rather seem to concern how to actually receive this knowledge and use it in practice. As one of the respondents expressed:

We have the knowledge; this is not the problem. We have numbers and figures on most issues, but when it comes to actually taking the steps and use all of this knowledge, it is not clear at all how this should be done (Respondent 1).

There seems to be a fairly large consensus today on why the food system needs to be restructured and that we need to create more sustainable systems. However, when it comes to developing and establishing what and how these changes should be made, this is more unclear (Jordbruksverket, 2021:3). There have been several attempts on working towards common goals, some more successful than others. For example, within the CAP & sustainability program there seems to be a great deal of agreement on both goals and working methods (Jordbruksverket, 2019:20, 30), while in the Environmental Council the agencies have

different priorities. According to one of the respondents the agencies still tend to steer towards different directions, making it more challenging to reach a consensus on how to achieve the goals (Respondent 2). Different and diverging interpretations and goal formulations can lead to difficulties in making trade-offs between different societal goals (Jordbruksverket, 2021:3). Developing more specific goals and targets is highlighted as an important measure to accelerate the transition to a sustainable food system. This could help reducing the risk of individual actors focusing only on individual areas of sustainability (Ibid, 37- 38).

The DG-forum is an example of a platform used for information and knowledge sharing between agencies (Statskontoret, 2020). However, it is clear that the transfer of knowledge between research and practical implementation needs to be improved (Jordbruksverket, 2021:3, 65). It is also highlighted that it can be difficult to distinguish between what is knowledge and what becomes politics. Since the agencies work is based on tax money this creates challenges because policy instruments and taxes tend to be more about political implementations than administrative. We therefore need to be better at talking about how we should design sustainable eating habits regardless of political affiliation (Respondent 2).

When it comes to data, measurements and calculations, knowledge is currently scattered, which creates difficulties in comparing different results and conclusions. Therefore, there is a need for greater collaboration between agencies and other actors in the food system to develop a more common understanding of how to use the data (Jordbruksverket, 2021:3, 38). Even though Swedish basic scientific research is very strong in many areas highly relevant to developments in agriculture, there are gaps in the research field between more basic research and applied research (Jordbruksverket, 2020b, 50).

There are also only a few research environments that specify on agricultural research, leading to a low level of collaboration between research and the business community. The ability to innovate within the sector is thereby limited, and low compared to other business areas in Sweden (Jordbruksverket, 2020b, 50). There is also a lack of knowledge about effective climate measures in the agricultural sector (Ibid, 63). Collaboration between all sectors needs to be strengthened so that the exchange of knowledge increases and can be developed faster into practical applications (Ibid, 37 - 38). In order to achieve this, a proposed solution is to

establish an independent actor with the mission to facilitate collaboration, as well as analyze the needs and share knowledge (Jordbruksverket, 2019:4). In order to increase competence and knowledge it is also important to develop training opportunities dealing with communication and conflict management, especially for agencies that within their work has a closer direct relation to, for instance, farmers. Through increased dialogue between agencies and the business community, it is also possible to create agreements between the policymaker's intentions and the practical work (Jordbruksverket, 2018:31, 45).

The National research program for food could be a way to handle some of the challenges concerning innovation and more research within the field, and as expressed by one of the respondents this platform has been successful in terms of collaboration and knowledge sharing (Respondent 3). The government is also working on strengthening innovation in the food chain and they are largely increasing the funding for food research in their proposition for 2021- 2024 (Jordbruksverket, 2021b), which could possibly solve some of the challenges. Agriculture and food production are also more discussed today than earlier, as expressed by one of the informants,

Food production is discussed in a much more positive way today than it was before and has become more of a social issue. Before, it was an issue that no one but the farmers themselves talked about, and now everyone talks about it, this is a good basis (Respondent 4).

The results of the analysis show that there is a certain degree of uncertainty in the area. The main challenges addressed is the unclarity concerning how to use the knowledge in practice, the fact that there are divided opinions on the main goals and insecurities on the policy measures needed to achieve the goal. There is also a problem concerning the division between bare knowledge and politics as well as a lack of research within the field.

Table 8. Uncertainty results

Uncertainty	Yes	To some extent	No
There are insecurities concerning the effects of policy measures needed to achieve SDG 2		X	
There are gaps and conflicting understandings in the knowledge base in relation to SDG 2		X	
There is limited availability of information and knowledge within the policy field related to SDG 2	X		
It is unclear how the knowledge could be used in practice	X		
Actors from different knowledge domains are included in the work	X		
There are disagreements on the nature of the problems			X

2.3. Summary and potential solutions

The results show that there are characteristics of both complexity and divergence as well as fragmentation and uncertainty in the policy field connected to achieving SDG 2. The table below shows a summary of the main challenges addressed by the agencies and possible solutions and proposed actions in order to handle these challenges. Although SDG 2 has been integrated into several national strategies, initiatives and projects working with the issues, there are major challenges left in order to achieve the goal. As expressed in the theoretical framework, more or better collaboration and coordination are often seen as preconditions to address these wicked and complex policy challenges. Based on this analysis it is clear that there is a lot of work left to do in this area in order to reduce the wickedness and solve the challenges and issues. There seems to be problems with both a coordination underlap and a coordination overlap in the work. Due to the fragmentation and the unclarity in both responsibility and tasks highlighted, some issues appear to fall between the lines and become the responsibility of none while other issues seem to be everyone's responsibility.

Further, a main challenge addressed by the agencies concern the lack of clarity on how SDG 2 relates to other national goals and strategies and a lack of a common frame and consensus for what constitutes a sustainable agriculture and food system. As discussed by Peters (2019), identifying common frames for a problem is necessary in order to solve coordination issues, but are time consuming which is expressed as a major challenge within the agencies work.

The conflict-seeking structure and conflicting objectives is also highlighted as being problematic in the work towards achieving SDG 2, as it creates challenges in reaching a consensus on how to organize the work and handle conflicts between actors. This risk leading to agencies choosing to collaborate on the easiest targets, or the targets of most interest for their organization and work. This shows similarities with Peter's (2019) discussion on how bargaining processes among actors may produce solutions through the lowest common denominator and produce very little process in actually solving the problems. Lastly there seems to be challenges with gaps in the research field, as there is a need for more research on agricultural policies, as well as a lack of clarity on how to use the existing knowledge in practice.

The solutions discussed and provided by the agencies is mainly solutions that require Governmental action, like for example increased resources, clearer directives, structures, tasks and roles and more specified assignments. Other solutions discussed by the agencies is to establish a common platform for collaboration within the food sector, and further promote collaboration and dialogue, which would handle challenges concerning framing of the nature of the problems and conflicts. There also needs to be an increase in research within the field and furthermore discussions on how to use this knowledge in practice. Another important problematic aspect highlighted by many of the informants, in relation to several different challenges, is the lack of including political aspects into the discussion. The discussions regarding the 2030 Agenda and sustainable food systems need to take into account political aspects and interests.

Table 9. Summary of results wickedness characteristics

Complexity and divergence	
<i>Main challenges</i>	<i>Possible solutions and proposed actions</i>
<ul style="list-style-type: none"> • A high number of involved actors • Lack of time and resources to collaborate • Lack of clarity on how SDG 2 relate to other national goals and strategies • Difficulties in working holistically, risk of selecting to work with the “easiest” sub-goals • The structure itself is target and conflict-seeking creating goal and interest conflicts • Not including political aspects in the discussion • 	<ul style="list-style-type: none"> • Increase the agencies resources • Create a common platform for collaboration within the food sector • Deepen the understanding of how conflicts should be handled and training in communication and conflict management • Further expand dialogues and cooperation • Include political aspects in the discussions
Fragmentation	
<i>Main challenges</i>	<i>Possible solutions and proposed actions</i>
<ul style="list-style-type: none"> • Unclear directives and division of responsibility • Similar assignments from different organizations and levels • Receiving questions and assignments which agencies cannot really handle • Silo organizational structures • Focus on general assignments rather than specified assignments • Fragmented strategies 	<ul style="list-style-type: none"> • Clearer government directives • Clearer governance and consensus from departments • Specify responsibilities within the sector and between agencies • More specified assignments and not only general • Monitor and further develop established strategies • Create more coherence between strategies
Uncertainty	
<i>Main challenges</i>	<i>Possible solutions and proposed actions</i>
<ul style="list-style-type: none"> • Lack of clarity on how to use the knowledge in practice • Unclear objectives between different actors • Unclear what is knowledge and what is politics • Scattered data and measures • Gap and lack of research within the field, 	<ul style="list-style-type: none"> • Develop clearer objectives to create consensus on what the nature of the problem is • Strategies and more dialogue on how to put knowledge into practice • Create mor coherent indicators, measures and data within the sector • Expand research on agriculture and food systems • Establishment of an independent coordination actors that can facilitate cooperation and thus increase knowledge sharing within the policy area.

3. Conclusion and Discussion

The main purpose with this study was to examine how governmental agencies address collaboration and governance challenges in their work related to SDG 2, and proposed solutions for handling these challenges. This was done by conducting a case study focusing on Sweden and SDG 2. The study was conducted in two stages and guided by two research questions. The first question was of a more descriptive character examining how Swedish agencies coordinate and organize the work towards achieving SDG 2 by mapping the relevant established collaboration strategies and platforms. This was done to get an overview over how the work is organized in order to further analyze the main challenges. The second step was more analytical and analyzed the main collaboration and governance challenges based on a wickedness perspective and the four characteristics: Complexity, divergence, fragmentation and uncertainty. The results of the first research question showed that the work is organized and coordinated through many different strategies and platforms, like for example platforms for collaboration between agencies or national strategies such as the Food strategy and the Rural development program. There is no clear platform where the main work takes place, it is rather a fragmented organizational structure. The results of the second question showed that there is a certain level of complexity and divergence, as well as fragmentation and uncertainty within the policy field, creating coordination issues that needs to be handled in order to implement and achieve SDG 2 in Sweden. The main proposed solutions for handling the addressed challenges require governmental action.

Based on the analysis and results of this study, it is clear that there are many challenges that need to be addressed in order to achieve SDG 2 and create a sustainable agriculture and food system. An important factor to highlight in relation to this, is that all of the informants pointed to the fact that the working process with the 2030 Agenda is still at the initial stage and that the work so far has mostly been about integrating the agenda in the work and not so much about how to actually achieve and reach the goals. By continuing to work on integrating the agenda into the work, instead of actually trying to achieve the goals, it will be difficult to achieve any proper results and solve the issues. There is a risk that there will be a strong focus on documenting the work around the 2030 Agenda instead of focusing on achieving the goals.

As already discussed, it is difficult to generalize the results from a case study like this. First of all, the study focuses only on SDG 2 whereas studies including other goals might have

revealed other different challenges. The food sector differs from other sectors in that it includes the entire value chain, whereas many other sectors only involve the processing stage (Tillväxtverket, 2018), there may therefore be differences in the way cooperation takes place. Agriculture has also not received as much political attention as other sectors and less has been invested in the sector. However, the documents as well as the informants expressed that many of the problems and challenges around SDG 2 are ones that apply to the implementation of the whole Agenda, in that it has to be worked with holistically. Therefore, the findings from this study can provide an overview of challenges and possibly help to bring about change also in other contexts.

What is also important to discuss is the fact that the study only focuses on a limited number of agencies and includes quite a small number of interviewees. Including other agencies, or other employees with different functions and tasks related to SDG 2, could have provided additional relevant and interesting aspects to the purpose of the study. It would therefore be relevant to conduct further research within the field, including a higher number of agencies and employees. As the study only focuses on how the agencies address and handle the challenges within their work, it does not include other relevant actors' views on the topic, such as companies and civil society actors. As the results indicated that the main cooperation happens between public actors, and that partnerships with civil society and companies are rarer, it would be highly relevant to further investigate these actors' perspectives on the challenges and compare these. Another interesting venue for further research would be to compare the results in this study with other countries to examine differences and similarities. As countries develop their own strategies to achieve the 2030 agenda and SDG 2, this would be highly relevant. Since countries have different political systems and organizational structures research comparing countries would probably reveal further challenges in the work.

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Appendix

1. Sustainable Development goal 2

2.1. By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

Indicators; *Prevalence of undernourishment and prevalence of food insecurity*

2.2. By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs for adolescent girls, pregnant and lactating women and older persons.

Indicators; *prevalence of childhood stunting, prevalence of childhood malnutrition*

2.3. By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

Indicators; *production per labour unit, income of small-scale food producers*

2.4. By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

Indicators; *sustainable food production*

2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

Indicators; *Genetic resources in conservation facilities, local breeds at risk of extinction*

2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agriculture research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productivity capacity in developing countries, in particular least developed countries.

Indicators; *Agriculture orientation index for government expenditures, official flows to agriculture*

2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round.

Indicators; *Agricultural export subsidies,*

2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

Indicators; *Food price anomalies*

Source: United nations (n.d). Goal 2 – Targets and indicators. Available: <https://sdgs.un.org/goals/goal2>

2. Interview guide

This interview guide displays the basic questions that were asked in the interviews. In some of the interviews necessarily follow up questions were asked. The interviews were conducted in Swedish, but the questions have been translated into English below.

Theme	Questions
Introduction	<ul style="list-style-type: none"> • <i>Can you briefly explain your role at the agency and in the work related to the 2030 Agenda and the environmental quality goals?</i> • <i>For how long have you had this role at the agency?</i> • <i>How does the agency's work mainly connect to SDG 2, No hunger?</i>
Complexity and divergence	<ul style="list-style-type: none"> • <i>Are there many different actors collaborating in the work connected to SDG 2? If so, does this collaboration take place between all actors or more specifically between some?</i> • <i>Can you provide some examples of how you collaborate with other actors on issues related to SDG 2?</i> • <i>Are there established platforms and strategies that clarify and facilitate this collaboration? If so, can you give some examples?</i> • <i>Is it clear how the sub-goals within SDG 2 connects with already established national strategies and goals?</i> • <i>There are likely to be goal conflicts or conflicts of interests between different actors in the work towards achieving SDG 2 (e.g., conflicts between increased production and sustainable agriculture), what challenges do such conflicts create and how are these being addressed? Are there established strategies?</i> • <i>What are the main collaborative challenges within the work?</i>
Fragmentation	<ul style="list-style-type: none"> • <i>Do you find the agency's role in the work around the 2030 Agenda, and more specifically SDG 2, as clear (clear government directives)?</i> • <i>Is it clear how the work connected to SDG 2 is divided between different sectors, organizations and areas?</i> • <i>Is the division of responsibilities between different agencies and actors clear? Are there potential challenges?</i> • <i>What challenges do you see in reconciling the agenda and SDG 2 with already established strategies and goals?</i>
Uncertainty	<ul style="list-style-type: none"> • <i>Do you find that there is a lack of knowledge in how to achieve SDG 2 and what the actions required are?</i> • <i>Do you find that there is a lack of knowledge and research within the policy field?</i>

	<ul style="list-style-type: none"> • <i>Do you find it clear how the knowledge should be used in practice or are there any challenges related to this?</i>
Conclusion	<ul style="list-style-type: none"> • <i>Do you have anything else to add?</i>

3. Email to interview candidates

Hi,

My name is Norah and I am writing a master thesis in political science at the University of Gothenburg. I am looking for people to interview as a basis for my master thesis. I am curious to know more about the work related to the UN Sustainable Development Goal 2 and related environmental quality goals, as well as possible challenges in the work. I would therefore like to get in touch with someone who, based on their professional role within the agency, might be interested in being interviewed on the subject. Full confidentiality and anonymity are promised.

My paper focuses more specifically on how Swedish agencies coordinate and organise the work related to achieving the sub-goals of SDG 2 and related environmental objectives. In particular, I am interested in how collaboration takes place in the work, what conditions exist for different social actors to collaborate, what the main challenges addressed are and proposed solutions for solving these challenges. I am happy to tell you more about the thesis and can be reached by email norahlee.hg@gmail.com or by phone 0720154229. I look forward to your response and thank you in advance. Have a nice day!

Kind regards
Norah

4. Written Empirical material

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