Soil Sealing on the Agenda?
A Comparative Study of Swedish Urban Areas

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ABSTRACT

Soil is essentially irreversibly damaged when covered with impervious artificial surfaces, a process known as soil sealing. Previous research on soil sealing policies mainly studied strategies for effective local policy implementation. However, if effective implementation of soil sealing policies is to be considered, soil sealing policies should be on the local agenda. Therefore, this master thesis explored the local agenda setting of soil sealing. It drew on the Multiple Streams Approach and studied the agenda setting with respect to problem recognition, policy generation and actors’ engagement. Four Swedish municipalities with urban areas where soil sealing was already on the local agenda were examined. An analysis of policy documents and interviews with municipal civil servants and politicians enabled a comparison of the local agenda setting processes of soil sealing. The results showed general similarities in the problem recognition by indicators and feedback, but differences in the importance of focusing events. In one municipality, a focusing event in the form of a flooding seems to have pushed the issue of soil sealing to the local agenda. A powerful symbol, with which problems with soil sealing were recognized as a problem of the ethnicity of the citizens, was arguably used in one municipality. The role of consultants, the importance of inspiration from other municipalities and the value acceptability of soil sealing policies in the policy generation process were similar across all municipalities. In one municipality, researchers’ involvement was significant in the policy generation process. Regarding actors’ engagement, this master thesis showed that politicians were not considered as engaged with soil sealing by civil servants across all municipalities. However, according to all interviewed politicians, they considered themselves as engaged with issues of soil sealing. Moreover, policy entrepreneurs most probably had an important role in the agenda setting of soil sealing in one municipality only.

Keywords: soil sealing, agenda setting, Swedish municipalities, multiple streams approach
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Introduction

Soil is the foundation on which urban areas are constructed. It is the “unconsolidated mineral or organic matter on the surface of the earth” formed by climate, macro- and microorganisms (Jones et al., 2008, pp. 145-152). Soil is a largely non-renewable resource and the product of thousands of years of geological processes (Stolte et al., 2016). One way through which the soil resource can be irreversibly damaged is soil sealing, that is, the covering of soil with impervious artificial surfaces. Soil sealing is often a result of the construction of buildings and transport infrastructure. Therefore, in urban areas, a large portion of the total area is often sealed (Stolte et al., 2016). Soil sealing may lead to effects such as irreversible loss of arable land, increased run-off water flows and reduction of biodiversity (Scalenghe and Marsan, 2009). The degree of soil sealing is related to urban form and local design (Burghardt, 2006, p. 118). Hence, the degree of soil sealing and the effects from it to a great extent depend on decisions made when developing urban areas.

In Sweden, soil sealing has attracted some attention from policy makers at a national level. As early as year 2006, soil sealing was part of the proposed EU thematic strategy on soils (European Commission, 2006) and this strategy was supported by the Swedish government (Government Offices of Sweden, 2006). Other examples are the recommendation for municipalities to limit the degree of soil sealing (Swedish National Board of Housing Building and Planning, 2010) and that the Swedish Board of Agriculture (2017) stresses the irreversible effects of soil sealing. Furthermore, in 2017, an Inquiry on climate adaptation in Sweden highlighted several trends related to the management of run-off water. For example, increased precipitation due to climate change, increased degree of soil sealing due to densification of urban areas and asphalting of private gardens (Climate adaptation Inquiry, 2017). Therefore, a new legislation that would give Swedish municipalities more control over the degree of soil sealing was proposed (Climate adaptation Inquiry, 2017). Hence, it seems as soil sealing has obtained some, but rather scattered, attention nationally.

Prokop and Salata (2017) identify that more knowledge is needed about why existing objectives on soil sealing do not converge with local practices. Policies on soil sealing have been studied previously, in particular strategies for effective implementation
locally (Artmann, 2014, 2015). However, in order for implementation of soil sealing policies to at all be considered, the issue of soil sealing arguably needs to receive attention from important local actors such as politicians and civil servants. That is, soil sealing needs to be on the agenda (Kingdon, 2003, p. 3). Therefore, in an attempt to approach the theoretical gap pointed out by Prokop and Salata (2017), this master thesis explores in what ways soil sealing receive attention locally using theories on agenda setting.

Drawing on one of the most notable theories on agenda setting, Kingdon's (2003) Multiple Streams Approach (MSA), the problem recognition of soil sealing, policy generation and different actors’ engagement with the issue are explored. Additionally, the MSA allows for insights of when problems, policies and politics coincide, are coupled, which often leads to a policy outcome. In order to reach a policy outcome, previous research shows that policy entrepreneurs are of importance. A policy entrepreneur is a person, for example a politician or civil servant, who pushes for certain policies (Kingdon, 2003; Dannevig, Hovelsrud and Husabø, 2013). The results in this master thesis reveal circumstances where soil sealing is part of the local agenda and may thereby facilitate the agenda setting of soil sealing elsewhere.

Aim and research question
In this master thesis, the agenda setting of soil sealing in Swedish urban areas is compared and contrasted between four selected municipalities. Urban areas are of interest due to their high degree of soil sealing. To study the agenda-setting processes of soil sealing in Swedish municipalities is of particular interest due to the decentralized structure of the Swedish planning system (Planning and Building Act, 2010). To a large extent, the municipalities decide over their own planning (the municipality’s planning monopoly), which leads to large impact from municipal planning decisions on the degree of soil sealing. Furthermore, the decentralization enables a rich policy differentiation between municipalities which might create more variation in the results. Therefore, the unit of study in this master thesis is Swedish municipalities with large urban areas.

Four municipalities where soil sealing is regarded to be part of the local agenda are chosen, namely Botkyrka, Linköping, Malmö and Södertälje. The agenda setting of soil
sealing is explored by comparing and contrasting how municipal civil servants and politicians set the agenda of soil sealing at municipal level. In order to explore the municipal agenda setting of soil sealing, three research questions are formulated. In Swedish municipalities with urban areas:

- What determines the recognition of problems with soil sealing? (RQ1)
- How are soil sealing policies generated? (RQ2)
- What is the role of municipal actors in the agenda setting of soil sealing? (RQ3)

Organization of master thesis
This master thesis is divided into seven parts. First, previous research on soil sealing is introduced. Second, agenda-setting theory is presented, followed by central contextual information about the Swedish planning system and the four chosen municipalities. Fourth, the research design of this master thesis is outlined. Fifth, the results are presented and analyzed. Sixth, the results are discussed. This discussion includes: a summary of similarities and differences in the local agenda setting of soil sealing, a discussion of coupling of problems, policies and actors’ engagement as well as a presentation of the main research limitations. Lastly, the conclusion is presented.
Previous research

In this chapter, previous research on soil sealing is presented. Research that explicitly relates to soil sealing is prioritized. Prokop and Salata (2017) identify a theoretical gap of studies that can contribute to decrease the difference between targets on soil sealing and local policy output. By presenting soil sealing research on effects, development of soil sealing as well as research on soil sealing policies and their implementation, this gap is explored.

Effects from soil sealing

In this section, research on effects of soil sealing regarded as most relevant in a Swedish context are presented. First, soil sealing as an essentially irreversible process is considered. Second, effects of soil sealing are discussed through the concept of ecosystem services. This is followed by a presentation of research on effects of soil sealing related to loss of arable land, run-off water management and reduction of biodiversity.

First, soil sealing is essentially irreversible, since soil is a product of thousands of years of geological processes (Stolte et al., 2016). For example, in most parts of Sweden, soil layers have been formed mainly since the last ice age, 10 000 years ago (Geological Survey of Sweden, no date). Thus, once the soil resource is destroyed it can be regarded as irreversible lost due to the long renewal time. However, it is possible to de-seal areas, that is, to remove impermeable materials and refill with for example soil from elsewhere. This alternative has two downsides: 1) it does not recover the lost soil resource and 2) it is rarely carried out in practice since it is an expensive measurement.¹

Second, one way of understanding effects of soil sealing is the concept of ecosystem services, which are benefits for human well-being obtained from ecosystems (Millennium Ecosystem Assessment, 2005). Ecosystem services can be categorized in four categories: support, provision, regulation and cultural aspects. In Table 1, ecosystem services from soils identified by Haygarth and Ritz (2009) are presented. As will be shown in this section, many of the ecosystem services performed by soils are

¹ Gunno Renman, Professor of Land improvement & drainage, KTH, personal communication, 25th of September 2017
affected by soil sealing. However, soils can provide the ecosystem service platform and support human-made structures, such as transport infrastructure and housing (Haygarth and Ritz, 2009). Additionally, as a platform for the built environment, soils can provide many cultural ecosystem services, for example constructions for recreational and non-commercial use (Haygarth and Ritz, 2009). In other words, the concept of ecosystem services makes it possible to get an overview of the benefits for humans performed by soil. However, the concept is criticized for precisely this, that it is anthropocentric and denies an intrinsic value of nature (Schröter et al., 2014).

<table>
<thead>
<tr>
<th>Ecosystem service</th>
<th>Supporting</th>
<th>Provisioning</th>
<th>Regulating</th>
<th>Cultural</th>
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<tbody>
<tr>
<td>Type of ecosystem service</td>
<td>Primary production</td>
<td>Refugia</td>
<td>Water quality</td>
<td>Recreation</td>
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<td>Soil formation</td>
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<td>Nutrient cycling</td>
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*Table 1 Ecosystem services provided by soil in the UK (Haygarth and Ritz, 2009).*

Third, soil sealing may lead to an irreversible loss of arable land. Urban areas are often located where soils are most fertile and therefore urban development frequently take place on arable land (Satterthwaite, McGranahan and Tacoli, 2010). Between year 2000 and 2030, it is expected that urbanization will have led to the loss of 1.6-3.3 million hectares of top-quality agricultural land (UNCCD, 2017). Additionally, as pointed out by Haygarth and Ritz (2009) loss of agricultural land does not only lead to the loss of land for food production, the soil also loses its ability to cycle nutrients. These cycles can be for example those of nitrogen, phosphorus, and potassium (Millennium Ecosystem Assessment, 2005) and they have been evaluated to be one of the most important of all ecosystem services, measured in monetary terms (Haygarth and Ritz, 2009). Consequently, both food production and the ability to cycle nutrients are affected negatively by soil sealing on arable land.

Fourth, when covering soils with impervious materials water is hindered from infiltration. Among other things, that leads to increased run-off water flows (Burghardt, 2006; Scalenghe and Marsan, 2009). As shown in Figure 1, the amount of run-off water is multiplied by a factor ten when a nature area is sealed with impervious material and
turned into a parking lot (Swedish Water & Wastewater Association, 2016). Increased soil sealing has short, medium and long-term effects on run-off water management. In the short term, it implies increased effects of water flows in areas adjacent to the soil sealed. In medium term, increased ponding time and in the long term an increased risk of flooding (Scalenghe and Marsan, 2009). However, the quantity of run-off water is not only depending on the extent of soil sealing. In case of more intense rains, also soils that are not sealed will eventually be saturated. Therefore, devices that can delay the flow of the water, such as ponds and the functioning of the sewage system are other important factors to manage run-off water flows (Swedish Water & Wastewater Association, 2016).

![Run-off water flows for different land use](image)

**Figure 1** Run-off water flows for different land use (adaptation of Swedish Water & Wastewater Association, 2016, p. 35).

Fifth, soil sealing affects biodiversity. That is, it affects the diversity of habitats, species and genotypes (Louwagie et al., 2017). Soil sealing leads to a substantial reduction of organisms in the soil. Notable is that soil is believed to contain at least 25-33% of all living organisms (Stolte et al., 2016). Moreover, soil sealing often causes elimination of natural habitat of plants, by sealing the soil where they grow (Louwagie et al., 2017). Soil sealing can also lead to substantial shrinkage of habitats and habitats that become too isolated for organisms through a process called *fragmentation* of landscapes (Scalenghe and Marsan, 2009; Louwagie et al., 2017). Thus, soil sealing can have various and substantial effects on biodiversity.

The development of soil sealing
In this section, the development of soil sealing is discussed. First, two historically important factors for the development of soil sealing are presented: urbanization and transportation. This is followed by statistics on soil sealing in Sweden. Lastly, some trends related to the effects of soil sealing are discussed.

In his book *politics of urban runoff*, Karvonen (2011) describes that one main reason behind the increased use of impervious materials during the last century was
urbanization (Karvonen, 2011). In Sweden, 90% of the population lived on the country side 200 years ago. Today, the situation is the opposite with 85% of the population living in urban areas (Statistics Sweden, 2015d). Typical urban areas, inner-city closed blocked environments, often have a high degree of soil sealing (Burghardt, 2006, p. 118). However, this type of urban environment may have a lower per capita soil sealing than a detached housing area and it is therefore not straightforward to compare urban form and amount of soil sealing. For instance, Stone (2004) shows that low density areas in the US are associated with a higher use of impervious material per bedroom than high density areas. Furthermore, increased space efficacy by densification is considered as an important policy to limit soil sealing today (Artmann, 2015). Hence, urban form affects the degree of soil sealing but it is crucial to also consider the per capita soil sealing.

Low-density areas are often associated with high usage of cars, which is the second main reason behind the growth of surface run off during the last century presented by Karvonen (2011). The development of the road system led to an increased use of impervious pavements, which was appropriate for the use of motor vehicles (Karvonen, 2011). In Sweden, there has been a dramatic increase of roads covered with impervious materials since the 1930s. In year 1929, 300 km of the Swedish road system were roads covered with impervious materials such as asphalt or concrete. At the same time, 73 800 km roads were covered with different kinds of macadam and gravel (Frostman, 1995). Today, 79 000 km roads are covered with impervious materials in the state-owned road network (and there are 19 300 km gravel roads). There are also 42 200 km roads owned by municipalities (Swedish Transport Administration, 2017). Since roads are substantial part of the total soil sealing (Statistics Sweden, 2015a), the development of the use of impervious materials in the road network may be used to illustrate the development of soil sealing in Sweden.

There is no continuous national study of the overall development of soil sealing that can be used for comparison with the road network development. Data on the degree of soil sealing in 37 localities has been produced (Statistics Sweden, 2015b) but due to substantially changes of methods from earlier years therefore there is no comparable data set (Wiman and Svanström, 2013). The data shows that about one third of the sealed soil in the localities consists of buildings, 20% of roads and rail roads and 44% of
other uses (Statistics Sweden, 2015b, pp. 10–11). Furthermore, it shows that the degree of soil sealing spans between 24% in Lidingö to 51% in Landskrona (Statistics Sweden, 2015c).

Another method that can give an indication of the development of soil sealing in Sweden is the assessed effects from soil sealing. First, 3000 hectares of agricultural land were developed between year 2011 and 2015. The most common type of development is pointed out as soil sealing due to housing and infrastructure projects (Swedish Board of Agriculture, 2017). Second, flooding is a phenomenon that causes costs for hundreds of million Swedish kronor (SEK) every year for insurance companies. Furthermore, effects from flooding in Sweden are expected to increase due to climate change (Climate adaptation Inquiry, 2017). Third, the decline of land with good soil biodiversity potential due to construction of infrastructure and urban development year 2000-2006 was large especially in Stockholm, Skåne and Uppsala. The northern parts of the country were not affected by any measurable decline (Louwagie et al., 2017). Hence, the study of trends regarding loss of arable land, flooding and biodiversity all indicate that soil sealing is an issue of importance in Sweden.

Policies on soil sealing
In this section, studies that explore different types of policies on soil sealing and their implementation are discussed. First, studies of policies related to drivers behind soil sealing are presented, followed by a presentation of studies on effective implementation of soil sealing policies. Third, a recent Swedish research project related to policies on impermeable materials is considered. Lastly, soil sealing policies and the values surrounding them are discussed.

The most general approach to policies on soil sealing is connected to research of drivers of soil sealing. For example, research on soil sealing shows that soil sealing can increase even without population growth (Munafò, Salvati and Zitti 2013). Instead, consumption patterns rather than population affect the amount of soil sealing (Prokop and Salata, 2017). Accordingly, an important driver behind increased soil sealing is economic growth (Xiao et al., 2013; Prokop and Salata, 2017). This coupling of economic growth and increased soil sealing makes Montanarella (2017) suggest that the growth-oriented economic model of society must be approached in order to limit soil sealing.
Policies on soil sealing and effective strategies of their implementation are studied in several articles by Artmann (2015, 2016). Artmann (2015) shows that a mix of policies is most efficient to reach a reduction of soil sealing. In particular, four types of strategies to implement policies on soil sealing are considered to be effective: 1) regulation, for example national regulation regarding run-off water management and climate adaptation, 2) informal planning, such as municipal projects and programs, 3) information to private individuals to promote a decreased demand on soil and 4) co-operation solutions, such as regional collaboration projects (Artmann, 2015). Moreover, Artmann and Breuste (2014) study effective strategies of soil sealing policies directed to individuals in greater detail. One of the rationales for this is increased private garden soil sealing. There are several studies focusing on this increase (Perry and Nawaz, 2008; Verbeeck, Van Orshoven and Hermy, 2011; Warhurst et al., 2014). Drivers behind it are claimed to be factors such as increased car ownership, minimalist-garden trend and socio-economic reasons (Perry and Nawaz, 2008). Artmann and Breuste (2014) identify information to be a key policy in limiting private soil sealing.

In the Swedish research project Green Urban Systems, the usage of permeable materials in urban areas is studied (The Swedish Cement and Concrete Research Institute, no date). The research includes studies of for example: alternatives to impervious materials in seven Swedish municipalities (Andersson et al., 2017), the capacity of permeable materials subject to loads from heavy traffic (Simonsen and Hellman, 2017) and obstacles in the implementation of innovative solutions for run-off water management in Swedish municipalities (Andersson, Larsson and Malm, 2017). In the latter, implementation of innovative solutions for run-off water management in Swedish municipalities is studied (Andersson, Larsson and Malm, 2017). Using theories on innovation, they show that civil servants often hold a negative view of new solutions on run-off water management even though several municipalities participate in such research projects. Hence, the large and recent research project Green Urban System explores alternatives to soil sealing in Sweden, but mostly focus on run-off water management.

Although also focusing on run-off water, Karvonen (2011) is an interesting example since his theoretical approach differs greatly to Andersson, Larsson and Malm (2017).
He describes how management of urban landscapes typically has been and is centered around an idea of natural and human systems as separated. With this view, “problems with nature” can be controlled with ingenious solutions, preferably by engineering. By conducting two case studies in the US, he shows an attitude where environmental expertise is regarded as able to implement solutions on run-off water management with scientific measures and an apolitical approach. Furthermore, through the cases he finds a potential in civic politics. This concept is explained as local practices of deliberative processes in order to create “constructive local action” (Karvonen, 2011, p. 168), which acknowledges that natural and humans systems are embedded and not separated. He outlines suggestions on how to work towards a more sustainable future, summarized in the following way:

[C]ivic politics are frequently catalyzed by ordinary citizens who imagine new hybrid relations, identify humble experts and sympathetic neighbors to assist them in design activities, and ultimately engage in small but important experiments to test their ideas. (p. 197)

As the quote shows, Karvonen (2011) calls for a human-nature relation where humans and nature are not viewed as separated. He advocates for a changed role of experts, where local, civic experts are part of a deliberative process contributing with their knowledge of material and social conditions. Furthermore, by using an experimental approach, thoughts and ideas can be tested. Hence, with Karvonen's (2011) perspective on policies and politics of run-off water, the constructed dichotomy between human and nature can be overcome with another type of democratic process.

As shown in this chapter, soil sealing is a considerably studied topic. Nonetheless, whilst research explores irreversible effects from soil sealing and development of soil sealing, Prokop and Salata (2017) identify a need of more knowledge about why objectives on soil sealing do not converge with local soil sealing practices. Implementation of soil sealing policies has been studied earlier, as showed with various examples in this chapter. However, in order for effective implementation of soil sealing policies to at all be considered, soil sealing policies should arguably be on the local agenda. In an attempt to approach the theoretical gap pointed out by Prokop and Salata (2017), this master thesis explores the agenda setting of soil sealing locally using the Multiple Streams Approach.
Theory

Some issues arouse attention from policy makers, while some do not. Issues considered to be *on the agenda* are those to which central actors such as politicians and civil servants pay serious attention (Kingdon, 2003, p. 3). One way to understand more about why some issues reach the agenda is theories on *agenda setting*. A central theory on agenda setting is the *Multiple Streams Approach* (MSA) (Kingdon, 2003), which is applied in this master thesis. This chapter starts with an overview of the MSA and agenda setting theory, followed by a more detailed presentation of the central concepts in the MSA: the three streams and the policy entrepreneur. Lastly, the application of the MSA in this master thesis is discussed.

**Kingdon’s Multiple Streams Approach**

With the MSA, the agenda setting processes is understood as consisting of three *separate* streams: 1) problems are recognized, 2) policy proposals are produced and 3) political pressure is generated. At some point, all three streams can coincide, which is named *coupling* of streams. When all three streams come together, an issue is considered to firmly be on the agenda. Often, this creates a policy window with an opportunity for policy output. This process is frequently facilitated by so called policy entrepreneurs, actors actively pushing for certain policy outputs (Kingdon, 2003) (Figure 2).

![Figure 2 The general structure of the MSA (adapted Jones et al., 2016, p. 15).](image)

The MSA builds on the Garbage Can Model (GCM) of organizational choice, developed by Cohen, March and Olsen (1972). In particular, the MSA draws upon the idea of separate streams as characteristic for policy making processes and the ambiguity in that problems can be framed differently. In other words, a solution can be selected as a response to a problem as well as that as the reverse – a problem can be selected to an already available solution (Cairney and Jones 2016, p. 3). This concept is fundamental
in the MSA, as Kingdon (2003) puts it: “[t]hus solutions can be coupled with problems, proposals linked with political exigencies” (p. 173). Hence, to Kingdon (2003), the GCM is the foundation of understanding how problems, policies and politics can link to each other. This act of linking the three streams is with Kingdon (2003) terminology called coupling.

The MSA framework was developed by studies federal agenda-setting processes in the US with in-depth interviews year 1976-1979 (Kingdon 2003). However, numerous studies applying MSA in other countries and at subnational level (in the US as well as elsewhere) have been carried out (Cairney and Jones, 2016). For example, Keskitalo, Westerhoff and Juhola (2012) study the agenda setting of climate adaptation in three different EU countries; Engström, Nilsson and Finnveden (2008) study policy attention of environmental problems at a national level in Sweden; and Guldbrandsson and Fossum (2009) study the applicability of the concepts of policy windows and policy entrepreneurs on child health promoting policies in Swedish municipalities. Hence, previous research suggests that the MSA can be productive to apply at Swedish municipal level.

An application of the MSA of particular interest for this master thesis is Dannevig, Hovelsrud and Husabø’s (2013) study of agenda setting of the issue of climate adaptation in Norwegian municipalities. In their study, four factors are concluded to be drivers of the municipal agenda setting of climate adaptation policies: 1) individual efforts by engaged municipal civil servants, 2) focusing events, such as a flooding, 3) changes in observations of indicators and 4) involvement of researchers (Dannevig, Hovelsrud and Husabø’s 2013). These results are of special interest since the Norwegian and Swedish planning systems are relatively similar (Fredricsson and Smas, 2013) and that climate adaptation and soil sealing can be regarded as comparable issues, since both involve land use and a long time perspective.

The three streams and the policy entrepreneur

In this section, the three streams of the MSA are presented in more detail: the problem recognition stream, the policy generation stream and the political stream. Lastly, the role of policy entrepreneurs in the agenda setting process is discussed.
First, one stream in the agenda setting process is recognition of problems. A problem, Kingdon (2003) argues, is a situation to which it is believed change is needed. Situations are considered as problems if a situation differs too much with the ideal scenario, if the situation appears as a problem compared with the situation elsewhere and depending on how a situation is categorized. Kingdon (2003) emphasizes that the categorization of a problem affects what type of solutions are provided for it and he argues that “the category define our way of looking at the problems” (Kingdon, 2003, p. 113). The problem stream is operationalized into three factors that affect if a situation is recognized as a problem: indicators, feedback and focusing events as explained in detail below (Kingdon 2003). Dannevig, Hovelsrud and Husabø, (2013) stress events, such as flooding, and indicators as two of the four most important drivers of the municipal agenda setting of climate adaptation in Norway.

One common way of recognizing problems is changing trends in indicators. Examples of typical indicators are monetary costs and death numbers. Another reason for a situation to become regarded as problem is feedback, which consists of the results from monitoring and evaluations. For example, feedback can regard failure to reach an objective (Kingdon, 2003). Lastly, problems can be recognized through a focusing event, such as a crisis or natural disaster that works as a “push” to create attention for an issue (Kingdon, 2003, p. 94). Birkland (1998) studies the possibility of a focusing event in one location to affect agenda setting elsewhere. He concludes that depending on public interest and how ambiguous the harms of the event are, a focusing event can either stay local or expand and even push the agenda on a global level. Furthermore, the possibility for a focusing event to expand varies in different domains of policies. There are several variations of focusing events, one is called powerful symbol. According to Kingdon, problems can be recognized as powerful symbols if they relate to an issue “that is on the mind of important people anyway, and a symbol comes along to focus their attention” (2003, p. 97).

Second, in the policy stream, a short list of proposals is produced from a vast amount of alternative policies, or a so called “soup” of proposals (Kingdon, 2003, p. 117). The ideas in this soup are generated by the policy community, which is a group of experts on a certain policy theme, for example academics, consultants and lobbyist (Zahariadis, 2007). As one of the four most important factors for municipal agenda setting,
Dannevig, Hovelsrud and Husabø (2013) emphasize involvement of researchers. Hence, one part of the policy community, that is, researchers, have been central to the agenda setting of climate adaptation in Norwegian municipalities.

In order for an idea to advance from the policy soup to the short list, it should be technically and financially possible to implement and based on values that can be accepted within the policy community. Value acceptability is the general values of the policy community and it is loosely defined by Kingdon (2003) as how the policy community “see the world” and “approve or disapprove of similar approaches to problem” (Kingdon, 2003, p. 133). He focuses on his interviewees’ views of the role of the US federal government, equity and efficiency. Furthermore, Kingdon (2003) argues that anticipation of future constraints is an important factor in policy generation. This last factor involves that a policy is expected to receive political and public approval and keep within the budget.

Third, the political stream in the MSA depends on the three factors of national mood, lobby group campaigns and administrative and governmental turnover (Zahariadis, 2007). The MSA is created from data on the US federal agenda setting and not Swedish municipality level and there are therefore some difficulties in the application of the MSA’s political stream. One of these difficulties is the way politicians are involved in the local agenda setting process. Dannevig, Hovelsrud and Husabø (2013) show that there is a low political engagement for climate adaptation in Norwegian municipalities and conclude that “administrative officials were main proponents in the agenda-setting process” (p. 498). This type of civil servants, which work as a driving force in the agenda setting process is named engaged official in their research, and pointed out as the fourth driving force of agenda setting of climate adaptation in Norwegian municipalities. With Kingdon's (2003) terminology engaged officials are called policy entrepreneurs.

The policy entrepreneur is of utmost importance to create a possibility for the three streams to come together, become coupled, and create policy window from which policies are the output (Kingdon, 2003). The firmest type of agenda setting is when all three streams come together at the same time: when “a problem is recognized, policy solutions are available and the political climate makes the time right” (Keskitalo,
Westerhoff and Juhola, 2012, p. 383). The policy entrepreneurs can be for example civil servants, politicians, academics and individuals that because of diverse reasons try to push for policy outputs (Kingdon 2003). These reasons can for instance be that they are concerned with the issue, enjoy participating in policy processes and have some self-interest in the policy output. Dannevig, Hovelsrud and Husabø (2013) argue that in smaller municipalities, the possibilities of policy entrepreneurs are limited since these municipalities have smaller resources. Drawing on their results of the role of politicians and engaged officials, in this master thesis the stream of politics and the role of policy entrepreneurs are studied jointly and combined into one research question (RQ3).

Theory application
In this master thesis, the agenda setting of soil sealing is explored by comparing and contrasting the agenda setting process of soil sealing in Swedish municipalities. Due to the vast scope of factors that influence the agenda setting, Dannevig, Hovelsrud and Husabø’s research (2013) is used to limit the focus of each research question and construct the interview questions. The MSA theory is applied in the following way in each research question:

RQ1. The stream of *problem recognition*, the MSA is applied to explore factors of importance for these problems to be recognized. *Indicators* and *events* are expected to be factors of higher importance.

RQ2. The stream of *policy generation*. In this master thesis, the focus is on the role of the policy community in line with Dannevig, Hovelsrud and Husabø’s research (2013).

RQ3. Drawing on Dannevig, Hovelsrud and Husabø (2013) observation of civil servants’ role in the agenda setting process, this master thesis explores the political stream and policy entrepreneur jointly. In this research question, it is explored how certain actors, civil servants and local politicians, have been important for the agenda setting of soil sealing.

Together, the three questions make it possible to explore the *coupling* of policies, problems and politics in the agenda setting process.
Context

In this chapter, central contextual information on the Swedish planning system and the municipalities that are studied in this master thesis are presented.

Swedish planning system

In this section, the Swedish planning system is explained in more detail. After discussing the role of national and regional level, local planning responsibilities are presented.

National and regional level

Sweden is organized into 20 counties and 290 municipalities. The municipalities’ population size varies from 4 000 to 900 000 people (Swedish National Board of Housing Building and Planning, 2012). In general, responsibilities over planning are assigned to the local level. Only in the Stockholm County, the regions’ 26 municipalities must create a joint regional plan (Planning and Building Act, 2010).

The national level creates the legal frames for planning in Sweden. Most importantly, through the Planning and Building Act. This legislation stipulates that the County Administrative Boards should monitor the local planning processes with regard to a range of issues. The County Administrative Board acts as the national government’s regional representation on a county level (Swedish National Board of Housing Building and Planning, 2012).

The County Administrative Board may appeal against local plans that for example do not fulfil requirements related to the so called National interests (Riksintressen) and Environmental Quality Standards (Miljökvalitsnormer) (Planning and Building Act, 2010). The latter are standards relating to standards on air and water quality. For example, the County Administrative Board of Stockholm points out that plans that include a high degree of soil sealing probably must be investigated with regard to the effects on water quality standards (County Administrative Board of Stockholm, no date). If the County Administrative Board appeal against a plan, the municipality may appeal against that to the national government (Planning and Building Act, 2010).
Local level
The decision-making power over planning of the built environment in Sweden mainly is assigned to municipalities. This is often called the *planning monopoly* and means that if accepted by the County Administrative Board, the municipality has full discretion over planning decisions. Furthermore, the County Administrative Boards’ possibilities to appeal against local plans are limited (Swedish National Board of Housing Building and Planning, 2012). The lack of regional planning and the limited possibilities for the national government to influence the local planning make the Swedish planning system uniquely decentralized in comparison with many other countries’ planning systems (Fredricsson and Smas, 2013).

The local planning process can be categorized into mainly three levels: comprehensive planning, detailed development plans and building permits.

First, all Swedish municipalities have to guide their long-term planning of the physical environment through a *comprehensive plan*. This plan must include the area of the whole municipality. What is outlined in the comprehensive plan is not legally binding (Planning and Building Act, 2010). Since 2006, a Strategic Environmental Assessment (SEA) must be included if the comprehensive plan significantly affects the environment (Skåne County Administrative Board, 2007).

Second, *detailed development plans* are needed in several cases, for example when larger areas are developed. In a detailed development plan, the municipality can create legally binding regulation on the land use, such as if housing should be permitted in the area and the extent of housing. In a detailed development plan it is possible to regulate the degree of soil sealing in the planned area (Climate adaptation Inquiry, 2017).

Third, *building permits* are demanded for among other things new buildings and extensions. Similarly, site improvement permit is needed for larger changes on the site, for example changes of the ground height. However, a permit is not needed for soil sealing. The Swedish government has been suggested to change the Planning and Building Act to also demand a permit when soil sealing is carried out (Climate adaptation Inquiry, 2017).
The development of comprehensive plans as well as detailed development plans includes consultations. The type of consultation differs between different types of plans, but the County Administrative Board should always be consulted. The formal planning decisions are taken mainly in the Building Committee, which is an organizational body required in all municipalities (Swedish National Board of Housing Building and Planning, 2012). This Committee is, together with the local parliament, the central political organ in the planning process. The Building Committees’ decisions direct the division of the local administration focusing on planning and development (Swedish National Board of Housing Building and Planning, 2016).

Background studied municipalities
In this master thesis, the agenda setting of soil sealing is studied in four municipalities. These four municipalities are Botkyrka, Linköping, Malmö and Södertälje. In this section, central characteristics of these four municipalities are presented. In the next chapter on research design, the selection of these four municipalities is explained in detail.

As shown in Figure 3, the four municipalities are in the southern part of Sweden, which is also the more densely populated part of the country. Botkyrka and Södertälje are part of the County of Stockholm, Linköping of the County of Östergötland and Malmö of
the County of Skåne. Figure 4 shows photos from Tumba in Botkyrka, Vallastaden in Linköping, Västra hamnen in Malmö and central parts of Södertälje. Parts of both Vallastaden and Västra hamnen were constructed as housing exhibitions, in Västra hamnen known as Bo01.

In Figure 5, the percentage of green area and soil sealing in the largest locality of each municipality is presented. As can be seen in the figure, Malmö has the largest degree of soil sealing whereas Tumba in Botkyrka has the lowest degree of soil sealing. In Figure 6, the division of types of soil sealing is presented, related to the total area of each locality. As shown in the figure, the sealed soils in the municipalities consist mainly of buildings and roads. The category “other” includes for example parking lots and ports (Statistics Sweden, 2015b).

![Figure 5 Land use in the four largest localities in the studied municipalities (Statistics Sweden, 2015a).](image1)

![Figure 6 Distribution of different uses of the sealed soils in the largest localities in the studied municipalities (Statistics Sweden, 2015c).](image2)

In Table 2, some general information about the municipalities is summarized. As shown in the table, Botkyrka is the smallest and Malmö is by far the largest of the studied municipalities with regard to population. With respect to area, Malmö is the smallest and Linköping the largest municipality. Therefore, Malmö is also the most densely populated locality.

In Sweden, income taxes are allocated mostly to a local level (Swedish National Board of Housing Building and Planning, 2012). A large population enables more income from local taxes, but the municipality must also provide services for more inhabitants. Linköping is the municipality with highest net median income for inhabitants more than 20 years old. Malmö is the municipality with lowest net median income.
Furthermore, Table 2 shows that across all municipalities, the political majority in the local parliament is similar. The Social democrats and the Green Party are in power in all municipalities, mostly collaborating with one additional party.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Botkyrka</td>
<td>91 925</td>
<td>19 417</td>
<td>211,2</td>
<td>The Social Democrats, Green Party and the Left Party</td>
</tr>
<tr>
<td>Linköping</td>
<td>158 520</td>
<td>142 744</td>
<td>228,6</td>
<td>The Social Democrats, Green Party and the Left Party</td>
</tr>
<tr>
<td>Malmö</td>
<td>333 633</td>
<td>15 687</td>
<td>199,8</td>
<td>The Social Democrats, Green Party</td>
</tr>
<tr>
<td>Södertälje</td>
<td>96 032</td>
<td>52 515</td>
<td>213,0</td>
<td>The Social Democrats, Green Party and the Left Party</td>
</tr>
</tbody>
</table>

*Table 2 Some characteristics of the chosen municipalities (Statistics Sweden, 2015c, 2018a, 2018b)*
Research design

A comparative approach was chosen to answer the research questions. Data from four municipalities were interpreted qualitatively in a multiple-case study (Bryman, 2012). The chosen cases were municipalities where soil sealing was interpreted to be part of the local agenda. This allowed for comparing and contrasting the agenda setting of the issue of soil sealing in different municipalities. A multiple-case study was chosen since it has the advantage of being more robust than a single-case study (Yin, 2018). It was also regarded as necessary due to the availability of data, since a lower number of municipalities would make it more difficult to produce enough data for the analysis. Furthermore, the multiple-case study approach enables a comparison of the local agenda setting of soil sealing. Since agenda setting of soil sealing had not been studied earlier, it was of interest to explore similarities and differences in local agenda setting processes.

In this chapter, the different steps of the case selection of four municipalities where soil sealing was regarded to be on the agenda will first be described. This is followed by a presentation of the data used in the comparative study, that is, comprehensive plans (översiktsplaner) and interviews. Third, the method of analysis is presented. Lastly, the research positionality is discussed.

Case selection

The aim of the case selection was to select Swedish municipalities with urban areas where soil sealing was interpreted to be part of the local agenda. By doing this, the local agenda setting of soil sealing could be compared and contrasted. A summary of the case selection process is summarized in Figure 7. In Figure 7, it is showed how four municipalities (cases) were chosen from Sweden’s in total 290 municipalities by using three selection criteria. Each of these three steps of selecting cases are now presented and discussed.
First selection criterion: municipalities with large urban areas
The first selection criterion was used to identify municipalities with large urban areas. This was done in line with the research questions’ focus on urban areas, since such areas often are characterized by a high degree of soil sealing. Therefore, only municipalities with urban areas larger than 30,000 people were considered. Additionally, Gotland was included in the case selection. By including Gotland, municipalities in all regions of the country were included. Data on population size from 2010 were used, since that was the year Statistics Sweden used when developing data on locality soil sealing in Sweden. With this selection criterion, the number of municipalities of interest for the study was reduced from 290 to 37 (Swedish Association of Local Authorities and Regions, 2011; Statistics Sweden, 2015c).

Second selection criterion: mentions of soil sealing
The second selection criterion was used to identify municipalities where soil sealing could be interpreted as part of the local agenda. Explicit mentions of problems of soil sealing and soil sealing policies in the comprehensive plans were interpreted as an expression of soil sealing as part of the local agenda. Comprehensive plans are mandatory for municipalities to adopt and therefore convenient to compare across municipalities.

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2 When referrals are made to “comprehensive plans”, both comprehensive plans and SEAs are included.
In total, 96 comprehensive planning documents were searched from the 37 municipalities. These 96 planning documents consisted of 1) the adopted comprehensive plan in each municipality. If a new plan was currently in process, it was also included, 2) if separate, the SEA of the comprehensive plan and 3) if separate, comprehensive plan over the locality (only when presented as part of the comprehensive plan).

The word count of soil sealing problems and soil sealing policies was carried out in the following way: all selected comprehensive planning documents were searched for the number of times soil sealing (variations of hårdgjord mark, search word: hårdg*) was mentioned. The mentions of soil sealing were categorized in three categories:

A) Explicit mention of a policy related to soil sealing, for example that soil sealing should be limited.
B) Explicit mentions of problems related to soil sealing, such as increased risk of flooding.
C) Other types of mentions, for example: soil sealing as part of a definition of run-off water.

Each mention was categorized only in one of the three categories. Only the sentence where soil sealing was mentioned was regarded. If both problems and policies were mentioned in a sentence, it was categorized into the policy category, since the main interest was mentions of policies (soil sealing was regarded to have a more important part in the local agenda if policies and not only problems were mentioned).

All in all, soil sealing was mentioned in 30 out of the 37 municipalities’ comprehensive plans. Soil sealing was mentioned in total 177 times. In 20 cases the mention was categorized as “other” (Table 3).

*Third selection criterion: most frequent soil sealing mentions*

A third and last selection criterion was used to select the municipalities to study in the master thesis. The basis for this criterion was “most frequent mentions of soil sealing policies”, since this was interpreted as the strongest indication that soil sealing was part of the local agenda.
In Table 3, the numbers of mentions are listed, ordered with respect to mentions of soil sealing policies. Malmö, Södertälje and Linköping were the three municipalities with most mentions of policies related to soil sealing in their comprehensive plans. Malmö and Södertälje with seven mentions each and Linköping five mentions. These three municipalities were selected for the study. Noteworthy, problems with soil sealing was mentioned 19 times in Botkyrka, well above Jönköping with second most mentions in this category. Therefore, soil sealing was interpreted as part of the agenda in Botkyrka and the municipality was chosen for the study.

<table>
<thead>
<tr>
<th>Municipality</th>
<th>A. Policies related to soil sealing</th>
<th>B. Problems with soil sealing</th>
<th>C. Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Malmö</td>
<td>7</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2 Södertälje</td>
<td>7</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>3 Linköping</td>
<td>5</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>4 Eskilstuna</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>5 Lund</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>6 Skövde</td>
<td>4</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>7 Täby</td>
<td>4</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>8 Halmstad</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9 Jönköping</td>
<td>3</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>10 Karlskrona</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>11 Landskrona</td>
<td>3</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>12 Helsingborg</td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>13 Umeå</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14 Växjö</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>15 Sundsvall</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>16 Botkyrka</td>
<td>1</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>17 Gävle</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>18 Göteborg</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>19 Karlstad</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Lidingö</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 Luèla</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 Upplands Väby</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>23 Västerås</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>24 Örebro</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>25 Östersund</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>26 Uppsala</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 Falun</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>28 Borlänge</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>29 Gotland</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 Stockholm</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 3* List of the 30 municipalities where soil sealing was mentioned in the comprehensive plans, showing the number of times soil sealing was mentioned related to policies, problems and other respectively.
All in all, four municipalities were selected for the multiple-case study. Four was considered as a suitable number of cases for the scope of the master thesis. It allowed for depth and nuances, since it made it possible to carry out several interviews in every municipality. At the same time, it enabled a comparison. The four chosen municipalities Botkyrka, Linköping, Malmö and Södertälje and some central contextual information about these municipalities are presented in the chapter Context.

Data
In this master thesis, comprehensive plans and interviews were used to examine the agenda setting of soil sealing. In this section, the selection of comprehensive plans and details regarding the interviews are presented.

Comprehensive plans
The comprehensive plans were selected using an identical procedure as the one presented in the case selection process. The selected plans for the four municipalities are presented in Table 4.

<table>
<thead>
<tr>
<th>Botkyrka</th>
<th>Linköping</th>
<th>Malmö</th>
<th>Södertälje</th>
</tr>
</thead>
</table>

Table 4 Selected comprehensive-plan documents.

Interviews
Semi-structured interviews (Bryman, 2012) were carried out with civil servants and politicians, as presented in Table 5. In this part, a detailed presentation of the participant selection, final sample characteristics, interview schedule and a summary of the interview process is made.

First, the participant selection was carried out through: 1) purposive sampling and 2) snow-ball sampling (Bryman, 2012). The aim was to interview at least one politician in
the Building Committee who was part of the ruling majority and two civil servants who claimed that they had worked with the issue of soil sealing in each municipality. Additionally, the participant selection of civil servants aimed at ensuring that there was a variety of units in which the civil servants worked at.

First, by using purposive sampling, interviewees that could provide relevant information regarding the research questions were selected (Bryman, 2012). The selection of civil servants was made by contacting 1) a comprehensive planner, 2) the head of the Planning Office and when possible to find contact details online also an 3) environmental planner. However, in Södertälje, the head of the Planning Office was not contacted. Instead, a contacted planner provided contact details to planners who had worked with the issue of soil sealing. In a first stage, civil servants and politicians in all municipalities were approached with emails according to the given criteria.

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Interviews</th>
<th>Unit within the municipal organization</th>
<th>Interview date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botkyrka</td>
<td>Int1</td>
<td>Technical Management</td>
<td>January 22, 2018</td>
</tr>
<tr>
<td></td>
<td>Int2</td>
<td>Planning Office</td>
<td>February 6, 2018</td>
</tr>
<tr>
<td></td>
<td>Int3</td>
<td>Political leadership</td>
<td>February 7, 2018</td>
</tr>
<tr>
<td>Linköping</td>
<td>Int4</td>
<td>Urban Environment Office</td>
<td>January 18, 2018</td>
</tr>
<tr>
<td></td>
<td>Int5</td>
<td>Planning Office</td>
<td>February 2, 2018</td>
</tr>
<tr>
<td></td>
<td>Int6</td>
<td>Political leadership</td>
<td>January 24, 2018</td>
</tr>
<tr>
<td>Malmö</td>
<td>Int7</td>
<td>Environmental Office</td>
<td>January 26, 2018</td>
</tr>
<tr>
<td></td>
<td>Int8</td>
<td>Environmental Office</td>
<td>January 29, 2018 (telephone interview)</td>
</tr>
<tr>
<td></td>
<td>Int9</td>
<td>Planning Office</td>
<td>January 29, 2018</td>
</tr>
<tr>
<td></td>
<td>Int10</td>
<td>Political leadership</td>
<td>January 30, 2018</td>
</tr>
<tr>
<td>Södertälje</td>
<td>Int11</td>
<td>Planning Office</td>
<td>January 18, 2018</td>
</tr>
<tr>
<td></td>
<td>Int12</td>
<td>Planning Office</td>
<td>January 25, 2018</td>
</tr>
<tr>
<td></td>
<td>Int13</td>
<td>Planning Office</td>
<td>February 5, 2018</td>
</tr>
<tr>
<td></td>
<td>Int14</td>
<td>Building Permit Unit</td>
<td>February 5, 2018</td>
</tr>
<tr>
<td></td>
<td>Int15</td>
<td>Political leadership</td>
<td>January 25, 2018</td>
</tr>
</tbody>
</table>

Table 5 Summary of conducted interviews.

Second, a number of contacted civil servants 1) did not answer when contacted, 2) claimed not have time for an interview or 3) referred to a colleague. The sometimes
high number of refused interviews led to an adjustment of the sampling method to also include a variation of purposive sampling, namely *snow-ball sampling* (Bryman, 2012). Therefore, in a second stage, civil servants that had been referred to by other civil servants or politicians were contacted. When there was a lack of referrals, contact was made with another civil servant to meet the criteria of number of interviews and variation. In Malmö, one civil servant was contacted at the municipality with the explicit aim to achieve more information about the Bo01 housing exhibition in year 2001. Additionally, one interview was carried out with a consultant who was involved in the development of policies for the Bo01 (interview carried out February 1, 2018).

Second, the *final sample characteristics* are presented in Table 5. As can be seen in the table, one politician was interviewed in each municipality in line with the initial aim. At least two civil servants were interviewed in each municipality as was aimed for, but in Malmö three interviews were carried out (plus the interviewed consultant) and in Södertälje the number was four. Table 5 also shows that there is a variety in which units that the interviewees work. One disadvantage of the variation is that it differs between the municipalities, which may make the results more difficult to compare.

Third, an *interview schedule* with the interview questions was developed (Appendix 1). The schedule worked as a guide for the semi-structured interviews. In order to better adapt the questions, a pilot interview was carried out with an urban planner in the municipality of Huddinge in the Stockholm region. Additional to the questions in the interview schedule were introducing questions, where the interviewees were asked to present their role in the municipality and name an example of when they had come in contact with the issue of soil sealing (Bryman, 2012). Furthermore, informed consent was sought by the interviewees and anonymity was guaranteed. All interviews were recorded and transcribed verbatim.

Lastly, the interview process can be summarized with some key numbers. The total number of interviews in the municipalities was 15 (Table 5). One interview was carried out with a consultant to ask specific questions about the Bo01 policy development (only focusing on the themes in question 7-9 in the interview schedule). All four contacted politicians accepted to be interviewed. Hence, the number of refused interviews was zero in the case of the politicians. The following numbers in parentheses show the
number of refused interviews by civil servants: Linköping (8), Malmö (3), Botkyrka (3), Södertälje (0). As can be seen, the number of refused interviews was high in Linköping, which is reflected in the low number of interviews in the municipality. In Malmö, the number of referrals to colleges was higher than in Botkyrka, which led to a higher number of interviews in Malmö. All interviews, besides the one telephone interview, were carried out in the local municipal offices.

Analysis
The analysis was carried out in two parts: a thematic analysis of each case and a comparison of the occurrence of the identified themes across all cases (Figure 8).

![Figure 8 Organization of analysis.](image)

First, each municipality was analyzed individually with thematic analysis. By using thematic analysis, themes were identified in order to answer the research questions (Bryman, 2012). A coding manual was developed deductively from the theory on agenda setting. Descriptive coding was used to identify different themes in the data (Saldaña, 2009). All included documents and interviews were managed and coded in the data analysis software NVivo. Noteworthy is that the comprehensive plans were coded only for explicit problems with soil sealing and if any policies were suggested to explicitly manage the recognized problems. In the interview transcripts, all codes were applied. In both plans and interviews, multiple coding was applied (Saldaña, 2009).

Second, the identified themes were compared across all cases to find similarities and differences in the local agenda setting of soil sealing. To facilitate this, a matrix was developed for each research question. The matrix included the different codes on one axis and the municipalities on the other axis. Drawing on previous research and the contextual information, identified similarities and differences in the local agenda setting were discussed.
The main challenge in the analysis of the data was the large number of coding categories and that some of them are quite loosely defined by Kingdon (2003) and elsewhere in the MSA literature. First, the large number of coding categories led to a variation in the quality of the data. In order to reach a less varying data quality, the empirical material would preferably have been larger. However, that was outside the scope of this master thesis. This challenge corresponds well with earlier critique of the application of agenda setting framework. Jones et al. (2016) have investigated studies that apply the MSA framework and conclude that even though the framework is robust it is also incoherently applied due to its vast scope. Second, some loose definitions of the theoretical concepts and thereby codes made the process of coding somewhat difficult. Some codes (focusing events and value acceptability) could not be operationalized only from the definitions provided in the literature and were defined inductively from the data.

Research positionality
The values and believes of the researcher influence the research (Bryman, 2012). Although written in third person, which might signal a higher degree of objectivity, decisions throughout the project were indeed influenced by the values and believes of the author. In this part, examples of how this has affected the master thesis research as well as some attempts to limit the influence are discussed with regard to the choice of topic and the master thesis as part in the agenda setting of soil sealing.

First, the choice of research topic was clearly influenced by the authors’ values and believes. In this master thesis, the choice to study soil sealing was deliberately made as an alternative to study either run-off water management or biodiversity or densification etcetera. Kingdon (2003, p. 113) stresses that categorization of a problem affects what type of solutions are provided for it. By focusing on soil and its usage, the idea was that other answers may be provided than if concentrating on for example only on run-off water management. An important reason for this decision was the insight of soil as a largely non-renewable resource and soil sealing as essentially irreversible.

Second, by choosing a category (soil sealing) that arguably is a less used categorization, the author’s role in the agenda setting process is not unneglectable. For example, several interviewees stated that the request for an interview had enabled them to think about the
issue of soil sealing when preparing for the interview. As a master student in urban planning the author is arguably also part of, at least in the peripheral way, the policy community. Hence, the author is an actor in the agenda setting of soil sealing while at the same time studying it. In order to limit these effects, the author tried to communicate to the interviewees that their views were of interest and that there were no correct answers. Several times this was emphasized when interviewees expressed insecurity about their answers. In general, the author did not push the interviewees or question their answers since the intention was to better understand in what way the interviewees connected different problems, policies and actors’ engagement to the issue of soil sealing.
Results and analysis

In this chapter, the results and the analysis of the municipalities’ comprehensive plans and the interviews are presented. This is done in line with the research questions, focusing on problem recognition, policy generation and actors’ engagement respectively.

Problem recognition
In this section, similarities and differences between the four studied municipalities are identified with regard to the stream of problem recognition. First, indicators, quantitative measures used to recognize problems, are discussed. Second, the importance of feedback, that is, information from monitoring programs and evaluations that lead to problem recognition, is identified. Lastly, two focusing events, flooding in Malmö and the usage of a powerful symbol in Södertälje, are discussed. The concept of focusing events is according to Kingdon (2003, pp. 94–95) a “crisis or disaster that comes along to call attention to the problem, a powerful symbol that catches on, or the personal experience of a policy maker” [emphasis added]. It is not straightforward to interpret what is understood as for example a crisis. Therefore, this category was inductively coded for events of a unique character that were mentioned multiple times and connected to some type of policy change.

Indicators
The first reoccurring indicator was identified as increase of soil sealing. It was the most mentioned indicator in all comprehensive plans and interviews in all municipalities. This indicator was most commonly connected to strategies of densification and growth. For example, in Botkyrka’s comprehensive plan it was stated that the “degree of soil sealing in developed areas will increase as Botkyrka grows and the neighborhoods are densified” (Botkyrka Municipality, 2014a, p. 42). All interviewees in Södertälje connected increased soil sealing with soil sealing in private villa gardens. For example, one interviewee stated: “it has become a larger problem I’d say, that a lot of people want to have a high degree of soil sealing in their gardens” (Int14). The issue of

3 However, as discussed in the section on Previous research, denser areas have a lower per capita soil sealing (Stone, 2004). Hence, it is possible that the per capita soil sealing decreases when the degree of soil sealing increase in a densification process.
increased private garden soil sealing was rarely mentioned in interviews in other municipalities. Hence, the indicator of increased soil sealing seems to be used similarly in all municipalities but Södertälje, where it is specifically connected to private garden soil sealing.

The second reoccurring indicator was identified as risk of flooding. This indicator was mentioned in all comprehensive plans and in interviews in all municipalities. For example, an interviewee answered the following when asked about problems with effects of soil sealing: “[i]n general it is in connection with run-off water management since it is a problem when the soil is sealed, the water cannot be infiltrated locally and then there will be problems in the sewage system” (Int4). As with the indicator on increased soil sealing, in Södertälje the interviewees connected this indicator with flooding in private gardens. The events of flooding in Södertälje have been recognized through the municipal water company noticing that capacity is exceeded (Int14) and the municipal organization noticing flooding whilst doing other works (Int13). Accordingly, also this indicator seems to be used similarly in all municipalities but Södertälje.

The third reoccurring indicator was increase of precipitation. This indicator was identified in all municipalities, but not as frequently mentioned as increase of soil sealing and risk of flooding. It was for example not mentioned in the Linköping comprehensive plan and it was mentioned only in few interviews. In both plans and interviews, this indicator was often connected to climate change. For example, when asked about the effects of soil sealing, the interviewed politician in Malmö stated:

The effects in Malmö are very evident, we have a… so to say, climate change in Malmö is mostly seen through cloudbursts and to some extent the rise of sea levels, which has pretty substantial effects in a flat city, hence the consequences are large. (Int10)

As shown in the quote, effects of soil sealing were connected with rainfalls and climate change. The interviewee mentioned rise in sea levels, which also can be interpreted as an indicator used to recognize problems with soil sealing. Noteworthy is that the indicator of increase of precipitation differs slightly from the other indicators since it is not directly connected to changes in the soil but changes in an external factor.
Indicators connected to loss of *green areas* and *ecosystem services* were identified in all municipalities. In particular, *loss of green areas* was mentioned in either the comprehensive plan or in interviews in all municipalities. In one interview in Linköping and all interviews in Malmö, the indicator loss of ecosystem services was mentioned. Noteworthy, in Malmö, the development of a policy tool within the project *Care of City* was pointed out by one interviewee as important for the problem recognition of soil sealing by creating an understanding of the values of ecosystem services. The interviewee argued:

> There, they have done a guide for ecosystem service analysis and then suddenly it is a bit more… then one could read and understand what it is about and how one could go about it. (Int7)

The quote shows how the policy tool led to a problem being recognized. This is an interesting example of one of the basic ideas behind the Garbage Can Model, which the MSA draws upon: that policies can be connected to problems (and not only problem to policies). In this case, a policy tool seems to have enabled problem recognition.

*Decline of biodiversity* was identified as an indicator but explicitly mentioned only by interviewees in Malmö, where it was mentioned in three of the four interviews. An interviewee in Malmö was also the only example of when soil was described as a natural resource and that soil sealing leads to an irreversible loss of it:

> The soil is destroyed [by soil sealing], one may have a living a healthy soil there underneath, but it is destroyed in the foreseeable future when it is sealed with asphalt. (Int8)

The quote and the other mentions of biodiversity as a problem with soil sealing in Malmö indicate a contrast from the other municipalities, where soil sealing and biodiversity were not explicitly connected.

Four other indicators of problems with soil sealing were mentioned: *contamination of water, contribution to increased local temperatures, decreased groundwater recharge* and *loss of arable land*. First, contamination of water was mentioned in all municipalities but Linköping. For example, in Botkyrka’s comprehensive plan, it is stated that “an increased amount of soil sealing leads to increased flows of run-off...
water, which, if not managed and purified before reaching the recipients, risk decreasing biologic and ecologic water status” (Botkyrka Municipality, 2014b, p. 68). Second, the indicator of increased local temperatures, or urban heat island, was mentioned in all municipalities but Botkyrka. However, the interviewees that mentioned this indicator were often hesitant about the relevance of the indicator. Third, problems with groundwater recharge due to soil sealing were mentioned in the comprehensive plans and interviews in both Södertälje and Botkyrka. In Linköping, loss of arable land was recognized as a problem with soil sealing by one interviewee. This number of different indicators shows on one hand the variety of issues that are related to soil sealing and on the other hand the general importance of indicators when problems with soil sealing are recognized.

All in all, indicators were important for the recognition of problems with soil sealing in all municipalities. The importance of indicators for problem recognition is line with Dannevig, Hovelsrud and Husabø (2013) findings that indicators, such as flooding and increased risk of avalanches, were one of the four most important driving factors in the agenda setting of climate adaptation in Norwegian municipalities. The results in this master thesis suggest that indicators are crucial for agenda setting also in the examined Swedish municipalities.

Feedback
Feedback was identified as a way of recognizing problems with soil sealing in interviews in all municipalities but Malmö. In the interviews, one actor that monitors the municipality’s work with some issues related to soil sealing was frequently mentioned: the County Administrative Board (Länsstyrelse). As one interviewee in Linköping put it: “yes, well here may the County Administrative Board play an important role, because we know that we will have to revise if cannot manage these issues (…)” (Int6). In some interviews, it was specified that it was feedback given on Environmental Quality Standards (Miljökvalitetsnormer) that had contributed to the problem recognition of soil sealing. As one interviewee in Botkyrka put it:

…there has been a strong focus lately so to say [on decreasing the degree of soil sealing] since the County Administrative Board is very tough when it comes to the Environmental Quality Standards on water. (Int2)
Both the County Administrative Board and Environmental Quality Standards were mentioned in the comprehensive plans in all municipalities. For example, in Södertälje’s comprehensive plan, it was specified that the Environmental Quality Standards originate from the EU directive on water and that it is the County Administrative Board of Västmanland that is responsible to ensure the fulfillment of the standards (Södertälje Municipality, 2013). Negative feedback given on the fulfillment of Environmental Quality Standards to the municipalities is a form of feedback that indicates the failure to meet a stated goal. Kingdon (2003) points out that kind of feedback as a typical way of recognizing problems. However, feedback was not identified as a driving factor for municipal agenda setting by Dannevig, Hovelsrud and Husabø (2013), which most probably can be explained by other methods of monitoring climate adaptation planning in Norway than standards concerning soil sealing in Sweden.

Focusing event in Malmö
Focusing events were identified as important to recognize problems related to soil sealing in Malmö. In particular, the flooding in Malmö in year 2014 was mentioned in three interviews as an example of how problems related to soil sealing had been recognized. As one interviewee put it: “[a]ll since we had this large flooding in Malmö 2014 after a heavy rain, cloudbursts became a huge political issue” (Int8). One interviewee described how the flooding in Malmö led to that the issue of soil sealing received more attention from politicians, the municipal Traffic Office and the municipal water and sewage company. The interviewee further argued that this led to the development of a Flood risk management plan (skyfallsplan) (Int7). Hence, it seems as the Malmö flooding in 2014 pushed the agenda on soil sealing and other issues related to flooding and resulted in policy changes.

The flooding in Copenhagen in year 2011 was mentioned in two interviews in Malmö. The interviewed politician argued that flooding in Copenhagen made the municipality aware of the problem of flooding, which indicates that the flooding in Copenhagen worked as a focusing event in Malmö. However, another interviewee argued that it was not until after the flooding in Malmö that the politicians recognized the problems of flooding. After the flooding in Copenhagen, the interviewee claimed, there was a belief “that [a large flooding] can never happen here” (Int7). This suggests that the flooding of Copenhagen did not function as a focusing event in Malmö. Accordingly, three of the
interviewees in Malmö considered the flooding in Malmö 2014 as a focusing event and one the flooding in Copenhagen 2011.

The role of the Copenhagen flooding as a focusing event highlights the possibility to transfer experiences from a focusing event in one municipality to another one. Only two interviewees mentioned focusing events that had taken place elsewhere: the politician in Malmö who argued that the flooding in Copenhagen pushed the agenda in Malmö and the interviewed politician in Linköping who mentioned events of flooding in the US in year 2017 as important for the problem recognizing of soil sealing in the municipality. Noteworthy, the floods in Malmö were not mentioned in any interview outside Malmö.

The results show an ambiguity in the possibility of focusing events to affect agenda setting elsewhere. This is in line with Birkland's (1998) research on focusing events, where he showed that the possibility of a focusing event to transfer from one local area to another one varies between different domains of policies and that seemingly similar events do not necessarily have the same patterns of transfer. It is also similar to Dannevig, Hovelsrud and Husabo's (2013) research, which showed some extent of transfer of experiences from focusing events. However, in their research, focusing events such as extreme weather events were singled out as one of the four most important factors for agenda setting of climate adaptation in Norwegian municipalities. In this master thesis, only in one of the four studied municipalities an, or possibly two, extreme weather events seem to have had an impact on the agenda setting of soil sealing.

**Powerful symbol in Södertälje**

As presented above, indicators were identified to be used to recognize problems with soil sealing in private gardens in Södertälje. In addition to this, a powerful symbol was arguably used when the problem of soil sealing in the municipality was recognized. The symbol consisted in that experienced problems with soil sealing in private gardens were explained to be a result of the ethnicity of the citizens in the areas of the flooding. This connection was made in two interviews in Södertälje and one in Botkyrka. According to Kingdon, problems can be recognized with powerful symbols if they relate to an issue “that is on the mind of important people anyway, and a symbol comes along to focus their attention” (Kingdon, 2003, p. 97). In Sweden, integration/immigration has been
ranked as the most important political issue for citizens both 2016 and 2017 in a national survey carried out by the SOM institute (Oscarsson and Bergström, 2017). Hence, the use issues of ethnicity (integration/immigration) when recognizing problems with soil sealing can be interpreted as the use of a powerful symbol. In previous research of soil sealing of private gardens, ethnicity of the citizens has not been identified as a factor that influences the degree of soil sealing. Instead, car ownership, a minimalist-garden trend and socio-economic reasons have been regarded as driving factors (Perry and Nawaz, 2008). However, in her dissertation, Mack (2011) studies the large Syriac\(^4\) populations’ influence on the built environment in Södertälje. Of special interest is her study of the detached housing area Lina Hage, known as “Hollywood” due to the particular design of buildings and gardens. Mack's (2011) research on Lina Hage is used when analyzing the interviews in Södertälje in this section as well as in the section on Feasibility in this chapter.

Mack (2011) identified the development of Lina Hage as an area where “stucco-clad, Mediterranean-style homes appeared where Swedish wooden cottages were anticipated” (p. 301). This resembles with the description made by the interviewed politician in Södertälje of an area where the interviewee recognized problems with private garden soil sealing:

(…) they had foreseen a pretty normal Swedish area of detached housing, but in the end, there was, if I say something like this: in the end, the housing was Mediterranean with stone buildings and in some cases almost all the gardens were sealed (…). (Int15)

This quote originates from when the interviewee was asked to give an example of an area where increased flooding due to soil sealing in private villa gardens was recognized as a problem. That is, not asked to explain why the recognized flooding as a problem. Even though ethnic diversity was not explicitly mentioned, the use of “Mediterranean” has a clear connection to the Syriac population in Södertälje. Furthermore, it was stated that the area with flooding was not a “normal Swedish areas of detached housing”. This denomination is in line with how Lina Hage was described by planners in Södertälje:

\(^4\) Mack (2011, p. 3) defined “Syriac” in the following way: "the adherents of the identity group usually known as “Suryoye” among its members, most of whom speak Suryoyo (a branch of neo-Aramaic), at least as a second language, and are members of the Syriac Orthodox Church".
“un-Swedish” and “disrespectful of the national consensus on appropriate form” (Mack, 2011, p. 338). Hence, although not explicit, the interviewee was arguably making a connection between problems with soil sealing and the ethnicity of the citizens in the area.

Furthermore, when one civil servant in Södertälje was asked to clarify if “problems in Glasberga sjöstad” meant private garden soil sealing, the answer was the following:

The problem in Södertälje, there is you must know, about 50% of the people come from, have their roots in another country, and if you come from a culture that enjoys asphalting it is not to say, there are different tastes so to say, if one says… if one can call that taste. That’s the reason there is a problem here in Södertälje, that there is such culture where it is regarded as nice to asphalt areas, I don’t know, maybe asphalting gives status… (Int13) [emphasis added]

The quote makes a clear connection between the degree of soil sealing and the ethnicity of the people living in the area. Noteworthy is that the interviewee was not asked to explain the interviewee’s ideas of why the interviewee recognized problems with flooding in Glasberga sjöstad.

Additionally, also the interviewed politician in Botkyrka argued that there are several reasons to why private soil sealing has increased without having been asked about it. After mentioning private garden soil sealing as an issue, the interviewee was asked how they had noticed that. In their answer, the politician’s focus was on why private gardens’ soils were sealed. The interviewee identified developers not prioritizing green spaces, trends and cultural and economic factors as plausible explanations. As exemplified in the following quote:
My view is, I don’t have any evidence but my feeling is that this ‘culture aspect’ that I was speaking about… we have that in our northern parts [of the municipality]. There are relatively many with foreign background who grew up here, who have been successful and who want to stay here. They want to make a housing career of some sort, move to detached housing, attached housing or similar. And then they want to develop [on their parcel] and they don’t have the same, and now I am stretching it a bit, with prejudices as well, maybe ethnic connection to ‘yes but it is important with grass and forest and similar’. Maybe they have other ideas from home countries or from other input and they do not have the need of that. Instead, they think it is looks better, nicer, with a sealed soil. Such tendency is possible to see, as I said I am stretching it, from cultural aspects but also time: what is the trend right now? (Int3)

As can be seen in the quote, the interviewee connected increased degree of soil sealing to “foreign background” and ethnicity. All in all, the quotes show how the problem with soil sealing was connected to the ethnicity of the citizens in the area, in particular in Södertälje. As will be shown in the next section, private garden soil sealing was addressed through several policies in Södertälje.

Policy generation
In this section on the policy generation stream, important differences and similarities between the municipalities in how soil sealing policies have been developed are identified. First, the role of the policy community, specialists that work within a policy area Kingdon (2003), is discussed. The role of external know-how and inspiration are discussed in more detail. Second, the aspect of feasibility is discussed with respect to municipal special requirements as well as Södertälje’s policies on private garden soil sealing. Issues with feasibility were identified when interviewees expressed thoughts regarding difficulties to implement an idea and legislative issues were included. Lastly, the policy community’s value acceptability of policies on soil sealing is explored. As discussed in the Theory chapter, value acceptability is loosely defined by Kingdon (2003). Therefore, in order to carry out this analysis, only answers to certain questions are included. The answers in focus are those that regard: 1) successful methods of approaching soil sealing, 2) wanted policies and 3) concluding remarks. These three questions requested the opinion of the interviewee and may thereby reveal what type of policies the interviewee has a value acceptability for. Additionally, explicitly expressed opinions on soil sealing as such are included.
Policy community

First, in interviews in all municipalities external know-how was regarded as important in the municipalities’ work with soil sealing. In particular, consultants were mentioned as an external actor with influence in the generation of soil sealing policy in all municipalities. The type of consultant was specified to run-off water management consultants in many interviews. For example, it was frequently described how consultants were assigned when assessing the effects of a new detailed development plan (detaljplan). One interviewee, who argued that consultants influence the policy generation on soil sealing, claimed the following:

If one thinks about consultants and that type of know-how, the question determines [the outcome] … or what kind of question you ask, what kind of assignment they are given, who gives the assignment and who is receiving it. (Int7)

The quote indicates that even if consultants contribute to the policy generation process in the municipality, their role is limited due to their role as consultants.

By contrast, researchers were rarely mentioned as an external actor in the development of policies related to soil sealing. Malmö was an exceptional case, where all interviewees mentioned involvement of researchers. For example, research as integrated in the municipal organization through a doctoral candidate who both works in the municipality and with research related to the municipality’s work was mentioned (Int7). Outside Malmö, only one interviewee mentioned research involvement (Int5). Since there was strong evidence of research involvement in the policy generation process only in Malmö, the results in this master thesis differs from Dannevig, Hovelsrud and Husabø (2013) research. In their article, involvement of researchers was pointed out as one of the four most important factors of the local agenda setting. There can be several reasons to this difference, one might be that the interviewees in this master thesis were not asked explicitly about research involvement and therefore did not include it in their answers. Another possible reason is that research on climate adaptation is more established field of research than soil sealing.

Second, one important role of the policy community seems to be to provide inspiration through already implemented projects. In other words, work carried of the policy community functioned as an important inspiration in the generation of the policy soup.
This was mentioned in interviews in all municipalities. One interviewee in Malmö pointed out inspiration from other cities as a more effective method for the municipality to develop new ideas than contact with researchers:

I think that other cities, well that has been an important source of inspiration. I believe that it is the most effective way to convey knowledge, more than researchers I’d say. And it is a matter of communication and of language; it is easier to understand other cities than researchers. (Int7)

Another example in line with the quote is the interviewee in Linköping who stated: “[y]es but that [being on study visits] one is all the time, and one sees what others are doing, what we can develop and take with us…” (Int5). This quote highlights the possibility for one municipality to be inspired by policies in other municipalities. The inspiration from other municipalities can be interpreted both as a method of adding policy proposals to the policy soup, but also as part of the short-listing process. For example, the quote from Linköping showed an intention to cherry-pick policies that could be applicable in Linköping. The idea to learn from already implemented policies corresponds well the strand of literature on best practice within studies of urban planning. Best practice is characterized by the idea of that policies that reach certain sustainability criteria should be disseminated to other places (Bulkeley, 2006).

The policy *Green Area Factor* (*Grönytefaktor*) was frequently mentioned as a tool to manage soil sealing that was generated with inspiration from other cities. It was mentioned in interviews in all municipalities but Botkyrka. Additionally, it was mentioned in Malmö’s comprehensive plan, where it was described as a quantitative formula used to promote green qualities in development projects (City of Malmö, 2014). Several interviewees in Malmö told the same story about the history of the Green Area Factor: it was developed with inspiration from Berlin and first used in the housing exhibition Bo01 in Malmö in year 2001. As one interviewee in Malmö argued “[w]ell, we did not really develop it, we copied it from Berlin” (Int8). Furthermore, the Green Area Factor in Malmö is now being developed with influence from elsewhere. In Malmö, all interviewed civil servants mentioned a current development of the Green Area Factor to also include public spaces. Two of the interviewees mentioned the development of the Green Area Factor within the project *Care of City*. One of these interviewees described the connection to the Care of City project in the following way:
Yes, it was in this project Care of City project that is run, or was run it has ended now, of the City of Stockholm, but the City of Malmö has been a partner. That project aims to include ecosystem services in urban planning and it has been developed, we have developed a number of tools to within that project (…) the Green Area Factor for public spaces is developed from the City of Stockholm’s Green Area Factor for development districts, which includes ecosystem services (…). (Int8)

The quote shows how Stockholm’s version of the Green Area Factor influenced Malmö to change their Green Area Factor. Additionally, the Green Area Factor worked as an inspiring example in other Swedish municipalities. It was mentioned both in Södertälje and Linköping and in the latter municipality it has been applied in a recent development project. In Linköping, it was no doubt for an interviewee that the inspiration came from other cities: “I know that many other municipalities work with it and therefore I wanted to include it in this project, it is as simple as that…” (Int5)”. In Södertälje, one interviewee stressed the advantage with Green Area Factor being used elsewhere since “…one does not need to reinvent the wheel again” (Int11). All in all, the policy community and more specific the transfer of best practice seems to have had important for the soil sealing policy development in Swedish municipalities.

Feasibility
First, one identified reoccurring issue regarding feasibility was the municipal special requirements. According to changes made to the Building and Planning Act, which were implemented in January 2015 (Swedish National Board of Housing Building and Planning, 2015), municipalities are not entitled to have technical requirements on developers that differ from Swedish legislation on issues such as construction and land use. In Malmö, the special requirements were mentioned in two interviews. One interviewee explained that the changes in the Planning and Building Act did not change the work with the Green Area Factor even if it affected their work with related issues:

[Then] what happened was that the Programme for environmentally sustainable construction in South Sweden [in which the Green Area Factor was included], that we used for ten years, yes more than ten years, but that we couldn’t use anymore due to changes in the Planning and Building Act. But the Green Area Factor is still used. (Int8)
The interviewed consultant also mentioned that Malmö stopped using the * Programme for environmentally sustainable construction in South Sweden* and specified that this happened because of the change in the Planning and Building Act on municipal special requirements.\(^5\) Furthermore, another interviewee in Malmö mentioned the special requirements and the interviewee also explicitly argued that Malmö probably not has legal basis to use it:

*For example, as a municipality we are not entitled to have special requirements in detailed development plans (...) We in the municipality work with the Green Area Factor (...) and this is something we work with but we are all rather convinced that we actually have no legal basis for that… no one ever appealed against us, but if they did maybe we’d have a problem. (Int9)*

Noteworthy is that Malmö applied the Green Area Factor despite it might not have been legal. However, this does not mean that the Green Area Factor was not legally feasible in Malmö. The quote indicates that there was an awareness of an issue with legal basis and Green Area Factor, but since someone must appeal against it, it is a feasible policy in Malmö until someone does and if Malmö loses that case. Also in Linköping, where the Green Area Factor has been applied, an interviewee mentioned the special requirement as a legislation that must be considered when implementing the Green Area Factor:

*Then it is all the time to find the balance if it is a special interest… special requirement… or is it not that… in this case we did it [the Green Area Factor] as voluntary and that worked fine in that project but one must feel all the time and balance: is it right to do it or not. (Int5)*

The quote in Linköping shows a will to comply with the legislation whereas the quote in Malmö shows a will to use the Green Area Factor until proven that it is unlawful to utilize it. Thus, although Malmö and Linköping operate within the same legislative framework, the legal feasibility of the same type of policy is considered differently.

The second reoccurring issue identified with respect to feasibility was the *legal possibility of preventing soil sealing in private gardens*. This was mentioned in four out of five interviews in Södertälje, and legal feasibility was a frequent theme. An

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\(^5\) Consultant Bo01, personal communication, 1st of February 2018
interviewee working at the Building Permit Unit in Södertälje claimed that: “[w]e have problems in approaching it [soil sealing], we feel”, due to building permits not being required for soil sealing and tiling (Int14). Therefore, the interviewee explained, a percentage number for the maximum amount of sealed soil had been included in some recent detailed development plans. Furthermore, the municipality had identified some private property owners to have excessive soil sealing in their gardens. The interviewee stated that the municipality planned to let the municipal Building Committee consider some of these cases (a so called tillsynsärende). The Committee is then to decide whether the property owners are to be charged with violations of planning regulation (rättelseföreläggande) (Int14). This is also stressed by the interviewed politician, who argued that there is a need to “secure compliance” with what the regulations stipulated by the municipality (Int15). These statements indicate a tendency much alike of what Mack (2011) showed in the area of Lima Hage in Södertälje, where the municipality considered the development of the built environment as problematic:

The neighborhood and its components become bureaucratic “matter out of place” (Douglas 1966); they are disturbing not only in and of themselves, but also suggest a loss of municipal control. It is a “danger” to the “purity” of the historically established system from which it so clearly departs. (p. 354)

The quote points towards that the municipality again has found an area in which there is a need to “take back control” regarding housing and garden design. Only one interviewee in Södertälje expressed that an alternative may be that the municipality took more responsibility instead of assigning it on individual property owners (Int12). This is in line with the results in 5.1, where the problem with soil sealing in private gardens in Södertälje was recognized as a problem of ethnicity and not for example with miscalculations at the municipality. The policy generation process in Södertälje on private garden soil sealing indicates how the problem recognition sometime is central to which type of policies that are considered as feasible.

Value Acceptability
There is no evidence of certain values being more present in some municipalities than in others. Arguably, there was a general view across all municipalities that technical solutions are successful methods to approach recognized problems with soil sealing. Some examples of technical solutions that were considered to be successful are multi-
story car parks in Linköping (Int5) and green roofs in Malmö (Int7). Noteworthy, in Södertälje, two interviewees mentioned industrial areas with very high degree of soil sealing as successful projects (Int11, Int13). In these projects, it was argued, issues with soil sealing were solved with for example delay trays for run-off water (fördröjningsanläggningar). It seems as technical solutions had a high acceptance – even when connected to a very high degree of soil sealing.

The view of technical solutions as desirable is in line with what Karvonen (2011) claimed to be the central value in management of the urban landscape. Namely, natural and human systems as separated where problems can be solved with ingenious solutions, often by engineering management. Citizens engagement, which Karvonen (2011) identified as a potential way to reach another type of relation between humans and nature, was mentioned only in one interview as a desirable way of developing policies on soil sealing. In Linköping, one interviewee stated the following when asked for a last comment in the interview:

[W]e have many projects where people moving in contribute with inspiration, citizens’ involvement in their housing so to say. Maybe the developers do not decide everything, but citizens and inhabitants can influence… and then the result is different. (Int5)

The quote indicates that the engagement was limited to groups of people that are to move into newly developed areas. Hence, it was probably quite different to the citizens’ engagement proposed by Karvonen (2011). There were other examples of when citizens were mentioned, such as the private garden soil sealing in Södertälje. However, those examples did not at all stress the engagement of citizens.

Across all municipalities, tools to be able to better recognize problems with soil sealing were mentioned as something many interviewees lacked. For example, in Botkyrka one interviewee would like to see maps that can show models of future risks of flooding (Int1), one interviewee in Linköping lacked tools for monetary quantification of values from ecosystem services that are lost when soil is sealed (Int4) and in Malmö one interviewee wanted statistic monitoring of the development of the degree of soil sealing (Int8). It seems that rather than policies to approach issues with soil sealing, more ways of recognizing issues with soil sealing were requested.
This wish can be interpreted as a want to create more awareness of issues with soil sealing. By doing that, soil sealing may eventually become part of the agenda. The desire for more indicators might also be an expression of the difficulties with proposing technical solutions that can “solve problems” with soil sealing. As the interviewed politician in Linköping put it:

Well what has struck me is that even if we try to reach much of what is stipulated in theories on sustainability: not to promote urban sprawl but to create a “round” [city]… but then this issue will be there [anyway] and there will be agricultural land there. Whatever you do you’re stuck between a rock and a hard place (vart du än vänder dig så har du rumpan bar). (Int6)

In the quote, it is shown that the politician acknowledged the difficulties to approach the issue of soil sealing when developing the urban area: either the degree of soil sealing in the urban area increase or arable land is sealed.

This difficulty to approach the issue of soil sealing may be understood with what Montanarella (2017) called the coupling of soil sealing and economic growth. According to Montanarella (2017), the issue of soil sealing should be approached through changes in the economic system. Hence, if the economic system is not approached, any other policy tools will lead to the frustration of “being stuck between a rock and a hard place” as illustrated by the interviewee in Linköping. No interviewee mentioned economic policies as a possible policy tool, but one interviewee mentioned de-sealing as necessary if the objective to not increase the degree of soil sealing is to be reached (Int8). If soil sealing and economy are understood as coupled, the idea of de-sealing might be just another way to express a will to change the economic system.

There were also examples of regulatory approaches to soil sealing that were considered to be successful, such as detailed development plan regulation of degree of soil sealing in Botkyrka and the case of compliance with planning regulation in Södertälje. Some interviewees pointed towards successful examples of a more analytical character, such as Ecosystem Service Analysis in Malmö. The belief in the effectiveness in a regulatory approach is in line with Artmann's (2015) findings on what strategies that are considered as most effective for soil sealing policy implementation.
There were two interviewees, one in Botkyrka and Malmö, who could not remind themselves of any project that had approached the issue of soil sealing successfully. In particular, the interviewee in Malmö could be an example of an expression of alternative values. The interviewee stated: “I know many examples where we have not done a good job” (Int9) and did not give any examples of when the issue of soil sealing had been approached successfully. Furthermore, the interviewee argued: “[i]n general I think that we have too much soil sealing” (Int9). Hence, it seems as the implemented policies in Malmö were not in line with the values of the interviewee.

Discontent with policies on soil sealing was found also in other interviewees. As one interviewee in Botkyrka argued: “[s]pontaneously I must say I am against soil sealing to the degree that it is done now” (Int1). Furthermore, one interviewee in Malmö stated that the issue of soil sealing is important but neglected:

> It is as question that is quite neglected issue I think, when one speaks about soil sealing and urban surfaces and so on, but the soil is a very important natural resource that can be destroyed not easily recreated. (Int8)

However, the view of soil sealing in itself as a problem was not shared with everyone. For example, one interviewee in Linköping did not seem consider soil sealing in itself as a problem:

> [I]t is not because that it in itself is wrong with soil sealed environments, but because other environments have other qualities that we might see that we need in some places. (Int4)

In the quote, the interviewee shows an acceptance towards soil sealing as long as the quality of the space is acceptable. One way of interpreting the difference between these quotes, is that the latter interviewee did not have the same view of intrinsic values of nature as the interviewee who considered the issue of soil sealing as neglected. In the former, the irreversible loss of soil is stressed. In the latter, soil sealing as such is not considered to be an issue, but rather the quality of the environment, which may or may not be an environment thought to primarily benefit humans. Hence, the two quotes show one interviewee who acknowledges the categorization of soil sealing as interesting and one who does not. According to Kingdon (2003), the categorization of problems is
crucial for what type of solutions that are provided. The result clearly shows that this categorization differs between the two interviewees.

All in all, the values around what were regarded as successful policies and missing policy tools seem to be similar across the studied municipalities. In all municipalities, technical solutions were generally mentioned as examples of successful projects and indicators were regarded as missing tools. One reason for this might be related to the political leadership largely consisted of the same parties in all municipalities (Table 2) and since the municipalities are politically steered organizations, the values within the four municipalities may have been similar.

**Actors’ engagement**
In this section, actors’ engagement is discussed. This includes political and civil servant engagement. The interviews have been coded according to expression of 1) politicians engaging with the issues of soil sealing, 2) civil servants engaging with issues of soil sealing and 3) if, or if not, one or a small group of civil servants have pushed for a policy, so called policy entrepreneurs (Kingdon 2003).

**Political engagement**
When asking civil servants about the interest from politicians in the issue of soil sealing, there was a general view that the politicians did not give much attention to the issue in all municipalities but Södertälje. For example, in Malmö the question on political interest in soil sealing was answered with comments such as “No, not so much” (Int9), “I think there is an interest but it is forgotten quite quickly” (Int7) and “at the moment there is not as strong support from the politicians, but we have had that before” (Int8). In Linköping, one interviewee mentioned that the interest in the issue depended on the party affiliation and claimed the upcoming election to be determinant for the continued work with soil sealing (Int5). Both in Linköping and Botkyrka, interviewees thought that the politicians might care about issues related to soil sealing, but that they frame it differently. As one interviewee in Linköping put it:

[I]t is not about not sealing the soil. Maybe not developing on agricultural land or to preserve the green environment due to values of nature for example but that is indirect. It is not direct, or a more general perspective, of ‘we should not seal more soils’. (Int4)
The quote points towards that the issue of soil sealing is not explicitly discussed. Similarly, as an interviewee in Botkyrka argued:

Maybe not a specific interest [in soil sealing] but they [the politicians] stumble across it when there is a green area that is going to disappear, when we are developing... (Int2)

These quotes indicate that “soil sealing” is not a category which is explicitly used when civil servants have contact with politicians. Instead, other categories such as run-off water management and green areas were used. This was stressed also in an interview in Södertälje, where an interviewed civil servant was not completely convinced that the politicians were generally interested in the issue of soil sealing. All interviewed civil servants in Södertälje mentioned a political interest in the issue of soil sealing and run-off water management and two interviewees specified this to private garden soil sealing. Accordingly, the politicians were regarded either as non-interested in the issue of soil sealing or claimed to not use the categorization of “soil sealing” by the civil servants.

By contrast, the interviewed politicians all claimed that they were interested in the issue of soil sealing. In Linköping, the interviewed politician argued that soil sealing was debated every meeting in the Building Committee (Int1). In Malmö, the interviewed politician stated: “that is an issue that we work with all the time really, in most of the planning, yes there is a very lively discussion” (Int10). In Botkyrka, the politician argued that it was an issue that the politician had considered “quite a lot” (Int3). In Södertälje, the politician stated that the issue of soil sealing was “very present in Södertälje, and we give it attention” (Int15). Thus, the civil servants’ impression of the politicians’ engagement in the issue with soil sealing differs greatly from the experiences the politicians describe.

This difference in the experienced level of engagement by politicians may have many explanations and two potential reasons will be discussed here. First, soil sealing may not have been discussed explicitly by the politicians, as described by most civil servants. However, when reflecting upon it, the politicians can acknowledge that they have been engaged with the issue, even though they did not necessarily use the term soil sealing when they had contact with civil servants. Second, the politicians might have been engaged with the issue of soil sealing explicitly, but did not prioritize it in the decision-
making process. This could explain why civil servants did not consider the politicians as interested in the issue, but the politicians viewed themselves as engaged. For example, in Botkyrka, both interviewed civil servants expressed that the politicians’ focus was on housing. One interviewee described how the politicians normally only were interested in the issue of soil sealing when civil servants had proposed to not initiate a planning process due to issues with soil sealing. Furthermore, the interviewee argued: “they want to build a city” (Int1). Similarly, in Malmö one civil servant claimed that the municipality did not work towards the objective of decreasing the degree of soil sealing though it was stated in the comprehensive plan. This was argued to be a result of the prioritization of new development and not de-sealing.

Civil servant engagement
In most interviews, it was emphasized that all divisions working with the built environment within the municipality took responsibility of issues regarding soil sealing. In general, it was difficult to find evidence of policy entrepreneurs. This may be explained in several ways. For example, that civil servants as policy entrepreneurs were not central for the agenda setting of soil sealing or that it was not regarded as appropriate to point out someone, or oneself, as a policy entrepreneur.

There was some evidence of policy entrepreneurs who pushed for policies on soil sealing. In Linköping, Botkyrka and Malmö, individual actors were pointed out as crucial for policy outcomes on soil sealing. First, in Linköping, one of the interviewees explained how the interviewee decided to use the Green Area Factor since the interviewee was afraid that the development area otherwise would be too sealed (Int5). Second, in Botkyrka, when asked why soil sealing was included in the comprehensive plan, one interviewee claimed that it was because of certain “sharp individuals” at the Environmental Office (Int1). Lastly, in Malmö, it was indicated that policy entrepreneurs were crucial in the development and implementation of the Green Area Factor. As one interviewee described the development of the Green Area Factor:
One factor is Klas Tham [head architect for Bo01] and partly his team in this Bo01 AB [project company], yes, he was interested in these issues and thought that the housing exhibition must strive towards the future, and then it must be about sustainability. Then there were many real enthusiasts among the civil servants who wanted to push for these issues and we applied for a lot of [economic] state support. (Int8)

In the quote, it is shown how the interviewee stressed the importance of “real enthusiasts” (eldsjälar) as a driving force in the process of focusing the exhibition towards sustainability and developing the Green Area Factor. In order to understand better what happened with the Green Area Factor in the beginning of this century, a consultant who worked with developing the Green Area Factor was interviewed. The consultant argued that the organization of the housing exhibition Bo01 was characterized by a high degree of freedom for the civil servants. In particular, the consultant pointed out that Malmö’s mayor at that time, Ilmar Reepal, left the technical details to the administration as long as highly attractive and sustainable housing were created. One interviewee in Malmö confirmed this view:

There was a network, one could say, between these real enthusiasts who often had some sort of managerial position. It was possible to have meetings and discuss and consider what issues to push for and how… and then the there was a lot of clarity in the organization with Bo01 AB with straight connection to the Planning Office… it was a great mustering of resources where a lot of things happened and where it was easy to come in and have an influence. (Int8)

Several aspects of this quote are interesting. It indicates an importance of policy entrepreneurs and their connection between each other. It also indicates the importance of the organization, resources and decision-making processes for the policy entrepreneurs’ possibilities to act.

Two of the interviewees in Malmö emphasized the current importance of policy entrepreneurs. The first example was one interviewee who described how decisions making often consisted in politicians approving ideas that come from policy entrepreneurs among the civil servants. The second example regards the project Care of City, where a new version of the Green Area Factor, focusing on public space, was

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6 Consultant Bo01, personal communication, 1st of February 2018
developed. When one interviewee was asked why Malmö has joined the Care of City project and if there was a political decision behind it, the interviewee argued:

Well, again I’ll have to say that it was I, hehe, who joined. There was no political decision there. (Int8)

This answer shows a clear indication of actions of a policy entrepreneur as important in the development of policies related to soil sealing. The results indicate that the importance of policy entrepreneurs was more central in Malmö than in the other studied municipalities. Dannevig, Hovelsrud and Husabø's (2013) research showed that the possibilities of policy entrepreneurs to operate were higher in municipalities with more resources. Hence, the results in this master thesis could most probably be explained by Malmö’s size: it is the largest of the studied municipalities.
Discussion

In this chapter, the similarities and differences with soil sealing and the coupling of the issue of soil sealing is discussed. The focus is on complete coupling, that is, when problem recognition, policy generation and actors’ engagement coincide and thereby firmly put an issue on the agenda (Kingdon, 2003). By discussing the results and analysis of the three research questions together, similarities and differences in the coupling of the issue of soil sealing can be identified. Furthermore, the main research limitations are presented.

Similarities and differences in local agenda setting

In Table 6, identified similarities and differences in the agenda setting of soil sealing are summarized.

<table>
<thead>
<tr>
<th>Similarities across the four municipalities</th>
<th>Problem recognition</th>
<th>Policy generation</th>
<th>Actors’ engagement</th>
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<tbody>
<tr>
<td>Indicators</td>
<td>Policy community: 1) consultants’ involvement 2) inspiration from other municipalities</td>
<td>Civil servants’ view on political engagement</td>
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<tr>
<td>Feedback</td>
<td>Politicians’ view on political engagement</td>
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<td>Value acceptability</td>
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<th>Differences across the four municipalities</th>
<th>Focusing event (including Powerful symbol)</th>
<th>Policy community: 1) researchers’ involvement</th>
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<td>Feasibility of policies</td>
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Table 6 Summary of similarities and differences in the agenda setting of soil sealing in the four studied municipalities.

Generally, across all municipalities, indicators and feedback were highly important for the problem recognition of soil sealing. In the policy generation process, involvement of consultants and inspiration from other municipalities seemed to be important in all municipalities. Regarding actors’ engagement, across all municipalities, civil servants viewed politicians as not engaged with the issue of soil sealing. At the same time, the politicians regarded themselves as engaged with the issue.
There were some notable contrasts in the agenda-setting process. Focusing events were important for the agenda setting of soil sealing in two municipalities: in one case a flooding and in one case a powerful symbol. The view on the feasibility of policies varied across the municipalities. Researchers’ involvement in the policy generation process was only pointed out as important in one municipality. Furthermore, only in one municipality, policy entrepreneurs seemed to play an important role in the agenda setting of soil sealing.

Coupling of problems, policies and actors’ engagement

First, in all municipalities, soil sealing was part of the local agenda as an issue of run-off water management. The problem recognition was similar across all municipalities: indicators of increased risk of flooding and feedback from the County Administrative Board made civil servants and politicians recognize problems with soil sealing related to run-off water management. Furthermore, consultants played a part in the policy generation process in all municipalities. Several civil servants acknowledged that even if politicians did not explicitly discuss soil sealing, run-off water management was an issue of concern for them. The results suggest that issues with run-off water management often followed a problem-solving coupling logic, where problem, such as fulfilment of Environmental Quality Standards led to political engagement and policy development.

Södertälje was a unique case of coupling of problems, policies and actors’ engagement since it was the only case where private garden soil sealing was an issue on the agenda. The problem was recognized through indicators but also through a powerful symbol. The powerful symbol consisted in that the amount of soil sealing was described as a result of the ethnicity of the people living in areas where there had been issues with flooding. In the policy generation stream, feasibility regarding whether individuals could be charged with violations of planning regulation was a frequently discussed issue. The politicians were described as engaged in the issue. Private garden soil sealing was mentioned also in other municipalities, but it was only in Södertälje where it was frequently identified as a problem, a policy issue and as an issue that engaged actors. It is possible that this clear agenda setting of soil sealing is connected to the usage of the powerful symbol.
Lastly, the agenda setting of soil sealing was distinctive also in Malmö and there were several unique aspects of the agenda setting process. These will now be discussed with regard to problem recognition, policy generation and actors’ engagement.

The problem recognition of soil sealing is more comprehensive in Malmö than in the other studied municipalities. It is the only municipality where decline in biodiversity was frequently mentioned and it was the only locality where an interviewee specifically mentioned the reduction of biodiversity in the soil as a result of soil sealing. Also, ecosystem services were mentioned several times. One interviewee expressed that the development of the new version of the Green Area Factor policy made it easier for people to understand the values with ecosystem services. This tool may be an example of when policies are connected to problems and not the other way around. That is, because there are policy tools that manage issues with biodiversity, a problem of biodiversity in soil is recognized. This possibility to connect policies to problems is central in the Garbage Can Model that the Multiple Streams Approach builds on.

Furthermore, in Malmö, the problem of soil sealing and run-off water was pushed on the agenda through mainly one focusing event: the flooding in Malmö year 2014. Subsequently to the flooding, policies were development involving serval actors in the municipal organization. Another part of the policy generation process that was distinctive in Malmö was the role of researchers. It was the only municipality where researchers’ involvement seemed to have had part of the development of policies related to soil sealing, with for example participation in research projects and a doctoral candidate working within the municipality.

Malmö was also the only municipality where policy entrepreneurs seemed to have had a crucial role in pushing the agenda on issues related to soil sealing. In particular, the development of the Green Area Factor was probably the result of the work of policy entrepreneurs, who had resources and political mandate to push their own ideas. It is noteworthy that the municipality applied the Green Area Factor even though it was regarded as potentially unlawful. In another municipality, this was considered to be a problem.
Of all studied municipalities, Malmö is the municipality where soil sealing seems to be most firmly on the agenda. There are surely many reasons for this, but here three potential reasons are discussed. One reason may be that Malmö has worked with the policy of Green Area Factor since the housing exhibition Bo01 in year 2001. That is, Malmö has a rather long history of using a policy tool that is associated to among other things, to decrease the amount of soil sealing. As discussed above, the existence of a policy tool may make it possible to recognize problems that otherwise would not have been recognized. Another plausible reason is that Malmö is the largest of the studied municipalities and therefore have more resources. This can influence the possibilities to participate in research, to use policies with unclear legality and create an environment where civil servants can work as policy entrepreneurs and develop new policy tools, such as the Green Area Factor.

Research limitations
The main limitations in this master thesis were the scope of the MSA and the difficulty of studying a process with the chosen research design. This meant that some parts of the agenda setting process could not be study in more detail.

First, the MSA is a theory with a large set of operationalized concepts, which made it impossible to explore all concepts with the same level of detail. On one hand, the use of a comprehensive theory made it difficult to go into detail of all aspects, which led to that some parts of the agenda setting process were studied in a more superficial way. On the other hand, by including all streams of the MSA as well as the role of policy entrepreneurs, the whole process of agenda setting was studied. This is not only necessary to do if one wants to study the agenda setting (which was the aim of this master thesis), it is also an advantage since the different streams of the MSA and policy entrepreneurs are interdependent.

Second, agenda setting is a process and the cross-sectional design of this master thesis limits the possibilities of studying a process. With a longitudinal design, including interviews but also other data such as minutes from meetings, more nuances would probably have been found (Bryman, 2012). For example, the case selection was based in mentions of soil sealing in the comprehensive plans. In all municipalities but Botkyrka, both problems and policies were included in the comprehensive plans and SEAs. In
Botkyrka, only problems were recognized. All interviewees were asked about the inclusion of soil sealing in these documents, but few of the interviewees had been participating in the comprehensive plan development and therefore did not have any knowledge about why problems and policies of soil sealing had been included. Therefore, it was difficult to compare and contrast the importance of the wording in the comprehensive plans for the agenda setting process across the municipalities.

In particular the actors’ engagement would probably have been more productive to study with a longitudinal design since this aspect of the agenda setting process was most difficult to receive answers on. In several interviews, the interviewees did not develop their answers regarding actors’ engagement. Changes of staff in the municipal organization or a culture of not pointing out certain actors’ engagement might have contributed to these difficulties. A longitudinal design was not possible to apply due to the limitations of a master thesis. However, by conducting interviews in this master thesis, the agenda setting process could still be studied by asking retroperspective questions about how events had unfolded and actors been engaged. Furthermore, by including politicians and not only civil servants, a nuanced view on different actors’ engagement was showed.
Conclusion

This master thesis compared and contrasted the agenda setting of soil sealing in four Swedish municipalities: Botkyrka, Linköping, Malmö and Södertälje. The problem recognition, policy generation and actors’ engagement were explored through three corresponding research questions and the following conclusions were drawn with respect to each research question.

First, it was concluded that indicators and feedback were generally central for the recognition of problems with soil sealing. In two municipalities, focusing events were important to push the agenda setting of soil sealing. These results were largely in accordance with earlier research on municipal agenda setting (Dannevig, Hovelsrud and Husabø, 2013). Surprisingly, one of the focusing events was in the form of a powerful symbol that related problems with soil sealing in private gardens to the ethnicity of the citizens.

Second, the policy generation process was fairly similar across all municipalities. In particular, consultants and inspiration from other municipalities were commonly regarded as important for the policy generation. Although expected to be an important for the generation of soil sealing policies, researchers were engaged in work related to soil sealing in one case only (Dannevig, Hovelsrud and Husabø, 2013). Furthermore, there were several considerations with legal feasibility. In particular, it seems as different municipalities regarded the legal feasibility of similar policies differently. Regarding value acceptability, values surrounding policies on soil sealing appear to have been similar across all municipalities.

Regarding the third research question on actors’ engagement it was concluded that in all municipalities, politicians regarded their engagement with the issue of soil sealing as high and the civil servants the politicians’ engagement as low or limited. This result showed an ambiguous view of the politicians’ engagement. In previous research, politicians were shown to have a low profile in the agenda setting process of this type of issue (Dannevig, Hovelsrud and Husabø, 2013). In one municipality, there was clear evidence of policy entrepreneurs pushing the agenda on soil sealing. Also this was
unexpected since earlier research on municipal agenda setting showed a more
determinant role of policy entrepreneurs (Dannevig, Hovelsrud and Husabø, 2013).

All in all, soil sealing was clearly part of the local agenda in all municipalities as an
issue related to run-off water management. Furthermore, in Södertälje, soil sealing was
on the agenda as an issue of private garden soil sealing. Malmö was also a special case,
where the agenda setting of soil sealing had been pushed in distinctive ways with
respect to problem recognition, problem generation and actors’ engagement. For
example, it was the only municipality where decline of biodiversity was considered as a
problem with soil sealing, where the focusing event of a flooding had pushed the agenda
and where policy entrepreneurs had been central in the agenda setting of soil sealing.
The distinctive agenda setting in Malmö may be associated with it being the largest of
the four studied municipalities.

Kingdon’s Multiple Streams Approach (MSA) on agenda setting was developed by
analyses of federal policy making in the US. By adapting the MSA in line with previous
research, it showed to be productive in exploring how problems with soil sealing were
recognized, policies generated and actors engaged at a municipal level in Sweden.
However, a challenge with the chosen comparative multiple-case research design was
the limited ability to contextualize the results in each municipality. The challenge
consisted mainly in the comprehensiveness of the MSA and that a high number of
concepts were operationalized. The large scope made it difficult to identify the
relevance of different contextual factors in previous research as well as in the data. This
issue could be approached by limiting the number of studied factors in the agenda
setting process and/or limiting the units of study.

The results of this master thesis contribute to current research with respect to both to the
field of agenda setting and soil sealing. With regard to existing research on agenda
setting at municipal level, this master thesis contributes mainly by continuing the
adaptation of agenda setting theories to a local level. Concerning research on soil
sealing policies, previous research has focused mainly on the effectiveness of local soil
sealing policies (Artmann, 2016). That type of research builds on the idea of soils
sealing as part of the local agenda. In this master thesis, municipalities where soil
sealing was regarded as part of the local agenda were examined in order to better
understand how sealing became part of the local agenda at all. Therefore, this result may be used to attract more attention to the issue of soil sealing and make soil sealing part of the agenda elsewhere. By doing that, effects from soil sealing regarding issues such as food production, run-off water management and biodiversity might be limited.

In future research, it is of interest to carry out in-depth studies of parts of the agenda-setting process of soil sealing. The results in this master thesis show that the values surrounding policies on soil sealing could be of interest to focus on. For example, whether soil is understood as non-renewable resource within the policy community and how that influences the value acceptability of certain policies. Furthermore, the perceived political engagement is of interest to examine further. In this master thesis, a clear distinction between how different actors experienced the political engagement was shown. This can be of interest for agenda setting studies focusing on municipalities as well as other administrative units.
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Appendix

Appendix 1: Interview schedule
Interviews were conducted in Swedish. The interview schedule in Swedish is presented Swedish below. Before interview, the definition of soil sealing was stated.

Questions in English

1. What do you recognize as the effects from soil sealing? Which of these do you consider to be a problem in your municipality?

2. Is there any legislation or other types of regulation that affect how you manage soil sealing? In what ways do those affect how you plan?

3. Do you think the municipality works with minimizing the degree of soil sealing in the municipality? In what ways?

4. Do you think that the tools that exist can manage the effects of soil sealing that you mentioned initially? Do you miss any type of tools?

5. Do you know how and when the tools were developed? Was there someone in particular (what actor) that worked for the tools to be developed?

6. In the comprehensive plan it is stated that the municipality wants to decrease the degree of soil sealing. Do you know why this was included in the plan? Do you know who (what actor) wanted to include it in the plan?

7. Are there any other tools that are being developed with respect to soil sealing? Who develops these tools? Why?

8. Is there a certain person or group within the public administration who pushes the issue of soil sealing? Has external expertise played any role?

9. Is soil sealing a topic that receives attention by the politicians in the municipality? In what way?

10. Is there a certain project that you think has been especially successful in the municipality with regard to soil sealing?

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7 “In the comprehensive plan soil sealing frequently pointed out as a problem” in the case of Botkyrka
Questions in Swedish

1. Vilka skulle du säga är effekterna av hårdgörning av mark? Vilka av dessa effekter anser du är ett problem i din kommun?

2. Finns det lagstiftning eller andra krav som påverkar hur ni hanterar hårdgörning av ytor? På vilka sätt påverkar det er planering?

3. Anser du att man jobbar med att minska andelen hårdgjorda ytor inom kommunen? På vilka sätt?

4. Tycker du att man genom de verktyg som finns kan hantera de effekter som du nämnde inledningsvis? Saknar du något verktyg?

5. Vet du hur och när verktygen som finns för att arbeta med hårdgörning av ytor utvecklades? Var det någon speciell aktör som arbetade för att ni skulle utveckla dessa verktyg?

6. I översiktsplanen (ÖP) står det att man vill minska andelen hårdgjorda ytor.8 Vet du varför de skrivningarna är med i ÖPn? Vet du vem eller vilka aktörer som var pådrivande i att inkludera dessa skrivningar?


8. Vem eller vilka på förvaltningen upplever du tar upp frågor om hårdgörning av ytor? Har externa experter haft del i utvecklingen av policy kring hårdgjorda ytor?

9. Är hårdgörning av ytor ett ämne som du upplever att politikerna i kommunen intresserar sig för? På vilket sätt?

10. Finns det några projekt där du tycker ni behandlar frågan om hårdgörning på ett bra sätt?

8 "I översiktsplanen omnämns hårdgörning av mark som ett problem ett stort antal gånger", in the case of Botkyrka.