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Negotiating climate change responses: Regional and local perspectives on transport and coastal zone planning in South Sweden

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ABSTRACT

Putting climate change policy-integration into practice is challenged by problems of institutional misfit, due to, inter alia, deficient vertical administrative interplay. While most focus within the field of climate change research has targeted the national–local interplay, less is known about the interface of regional and local perspectives. Here, the aim is to study that interface with a specific focus on the relation between regional and local spatial planning actors, through a case-study of transport and coastal zone management in a Swedish municipality. The article is based on interviews (focus group and single in-depth) and official planning documents. The material reveals a tricky planning situation, replete with conflict. In practice, various institutional frameworks, claims and ambitions collide. The attempts to steer the local spatial planning initiatives from the regional level led to conflicts, which in turn seems to have hampered the overall work for climate change management through spatial planning. Furthermore, there are few traces of prospects of a smooth vertical institutional interplay able to support the overall aims related to integrating climate change mitigation and adaptation in spatial planning.

1. Introduction

Spatial planning has been ascribed a significant role in meeting the current challenges of climate change mitigation and adaptation (Biesbroek et al., 2009; Davoudi et al., 2009; Wilson and Piper, 2010; Romero-Lankao, 2012). Scholars have demonstrated that spatial planning influences mitigation through, inter alia, urban development, land use and mobility patterns that are shaping energy demand and CO_2 emissions (Banister and Anable, 2009) and adaptation by affecting the extent to which climate risks, e.g., sea level rise (SLR), flooding, erosion, are allowed to influence urban development patterns (Campbell, 2006; Wilson and Piper, 2010).

However, effective responses to climate change in spatial planning will require the co-ordination and integration of perspectives, knowledge and interests, across sectors and governance levels (Hurlimann and March, 2012). In practice, studies from the westernized world have documented problems related to both horizontal and vertical institutional misfit, goal conflicts, and an overall low capability of governing climate change adaptation and mitigation in concrete planning practice (Urwin and Jordan, 2008; Burch, 2010; Dovers and Hezri, 2010; Storbjörk and Hedrén, 2011; Dannevig et al., 2012; Glaas and Juhola, 2013; Hrelja et al., 2015).

Such studies of vertical institutional interplay have mostly examined the interplay between local and national level actors. Here, several studies of climate change adaptation have documented how unclear distribution of responsibilities hampers climate adaptation and that there are few guidelines at hand to support the work of local government actors (Næss et al., 2005; Aall, 2012; Bedsworth and Hanak, 2013). Less attention has been paid to the interplay between the regional and local level actors, despite the fact that studies have shown the capacity of the regional level to be critical in multilevel governance (Hanssen et al., 2013) and the institutional interplay between regional and local actors in general to involve tensions (Pearce et al., 2011; Storbjörk and Hedrén, 2011; Nilsson et al., 2012). The recent study by Dannevig and Aall (2015), have also concluded that the role of the regional–local interactions has been under diagnosed. Accordingly, our paper aims to analyze the institutional interplay between regional and local spatial planning actors. The objective is to provide a deeper understanding of the characteristics of this interplay, to explore some of the tensions involved which makes it possible to also discuss ways forward. The research is carried out as a qualitative case-study of climate change

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governance in spatial planning in the small municipality of Vellinge in southern Sweden. Specific attention was paid to the management of issues related to transport and coastal-zone development in the process of developing a new Municipal Comprehensive Plan (MCP). The process has served as a rich source for exploring vertical institutional interplay between regional and local spatial planning actors. We acknowledge the key importance of the 'street-level bureaucrats', i.e., the officers working in the regional and local administrations (e.g., Lipsky, 1980; Grange, 2013; Hill and Hupe, 2002). By analyzing the views and perspectives of planners as well as their formal standpoints and written policy statements thereof, our paper examines how climate change concerns are negotiated between a municipality and a County Administrative Board (CAB).

Our research approach is inspired by existing research on multi-level interplay from the field of climate change governance where we also make use of Young's (2006) framework for categorizing different types of vertical interplay (see Section 3). The following research questions have guided our analysis:

1) What is the local and regional planning actors' approach to spatial planning and its role for climate change mitigation and adaptation?
2) What local strategies are being developed to handle climate change considerations in critical planning cases related to transport and coastal zone management?
3) What tensions and critical interfaces can be identified between the local and regional planning actors?
4) What do the strategies and tensions identified imply for the prospects of a smooth vertical institutional interplay capable of supporting the overall aims related to climate change mitigation and adaptation in spatial planning?

The article is organized as follows. Section 2 provides a brief overview over planning and climate change governance in Sweden. Section 3 summarizes existing literature on vertical administrative interplay within climate change planning and is where we introduce the analytical framework. In Section 4 the case study and research design is described. Section 5 is the results, divided into three sub-sections. The first concerns the local and regional planners' views on spatial planning as an arena for climate change mitigation and adaptation, the second strategies and tensions regarding sustainable transportation, and the third coastal zone management, including both adaptation and mitigation measures. The article ends with a discussion and conclusion.

2. Spatial planning and climate change governance in Sweden

Sweden is well-known for its high ambitions when it comes to climate change governance, but has challenges to overcome not least when it comes to putting concrete climate change responses into action (Lidskog and Elander, 2012; Finnveden and Åkerman, 2014). One challenge follows from the highly decentralized spatial planning structure in Sweden. By European standards, Swedish municipalities enjoy a uniquely elevated status in controlling land-use and spatial planning often referred to as the local planning monopoly (Hrelja et al., 2012; Storbjörk and Hjerpe, 2014). Municipalities are responsible for the planning of land-use and water within a legal framework set and supervised by national government (SFS, 2010). Regional or national authorities have no formal power over local development decisions as long as they do not violate national regulations. One pivotal regional authority in Swedish spatial planning is the County Administrative Board (CAB). The CABs are regional representatives of the national government with a task to support the implementation of national objectives in the 21 Swedish counties. At the same time however, the CAB is also a key regional development actor with a central role for coordinating regional development work. When it comes to spatial planning, the CAB is mandated to review MCPs and detailed development plans and is consulted during the local planning process. The CAB here has the task to ensure that local MCPs satisfactorily address the impacts of climate change (Lundqvist, 2015). In relation to climate change issues, the CAB has the task to regionally coordinate and assess activities related to climate change mitigation through the national environmental objectives. Since 2009 the CAB also have extended responsibilities for climate adaptation. In essence, the CABs has a somewhat double position and their approach may vary depending on what perspective they take and also on the exact stage in, for instance, a planning process (SOU, 2012).

3. Vertical institutional interplay in planning for climate change

Responding to climate change in general clearly requires co-ordination across sectors and between governance levels (Bulkeley et al., 2009), suggesting the importance of a well-functioning institutional interplay (Young 1996, 2006). Many empirical studies have documented policy co-ordination and implementation problems that are related to horizontal and vertical institutional interplay (Urwin and Jordan, 2008; Burch, 2010; Dovers and Hezri 2010; Storbjörk and Hedrén, 2011; Dannevig et al., 2012). In the context of planning for climate change, vertical institutional interplay, i.e., cross-scale interactions involving public actors operating at different administrative levels, has primarily been studied between the national and local levels (e.g., Urwin and Jordan, 2008; Amundsen et al., 2010; Baker et al., 2012; Juhola et al., 2012) and more recently between the EU and the national level (Glaas and Juhola 2013).

In most countries, climate-change policy integration is expected to take place and be converted into real action at the local governance level; this explains the large scholarly interest in cities and climate change. In order to approach climate change in planning, these studies have demonstrated barriers related to, for instance, resources, institutional setting, political priorities, and knowledge (Naess et al., 2005; Adger et al., 2007; Burch, 2010; Anguelovsky and Carmin, 2011; Baker et al., 2012).

When it comes to institutional interplay between national and local actors, many scholars have suggested that clear guidelines and directions from national government are an essential condition for enabling effective local climate change responses. Studies have documented how unclear roles and distribution of responsibilities hamper local climate responses, showing that currently there are few such national regulations at hand to support the work of local authorities (Næss et al., 2005; Storbjörk, 2007; Keskitalo, 2009; Amundsen et al., 2010; Aall, 2012; Nilsson et al., 2012; Bedsworth and Hanak, 2013). While stressing the importance of increased national level support (Urwin and Jordan, 2008; Amundsen et al., 2010; Dymén and Langlais, 2013) there are also indications that the lack of clear national agendas and incentives burdens local governments differently, depending on their different capacities (Juhola and Westerhoff, 2011; Anguelovsky and Carmin, 2011; Dannevig et al., 2012). However, there are other studies that suggest that local climate action actually could be spurred by the lack of national incentives (Amundsen et al., 2010; Storbjörk and Hedrén, 2011; Dannevig et al., 2012; Hjerpe et al., 2015). They also contend that centralized approaches, driven solely by national governments, may in some cases constrain local initiatives and create unfortunate dependencies (Amundsen et al., 2010; Dannevig et al., 2012). Interviews have shown that excessive national steering, for instance, in relation to the tradition of local planning monopoly, is not necessarily desirable from a local government perspective

(Storbjörk and Hedrén, 2011; Keskitalo et al., 2012; Hjerpe et al., 2015). Often, however, the literature suggests a combination of top-down and bottom-up approaches, where national actors set a proactive agenda and facilitate implementation that is primarily intended to occur at regional and local levels (Urwin and Jordan, 2008; Bulkeley et al., 2009; Amundsen et al., 2012; Baker et al., 2012; Preston et al., 2013).

Compared with the number of studies exploring national–local interplay, research regarding local–regional interplay is much scarcer. There are, however, good reasons for examining the interplay between regional and local planning actors. Firstly, the few studies available on the regional–local interplay have shown that the capacity of regional institutions is critical in order to support local climate action, and thus act as a driving force of local climate responses (Pitt and Randolph, 2009; Juhola et al., 2012; Bedsworth and Hanak, 2013; Hanssen et al., 2013). A Norwegian study has stated that the 'regional level might have a huge potential for being a multi-level node in this policy field' (Hanssen et al., 2013: 879). Recently, Dannevig and Aall (2015: 168) found that the regional coordination of climate adaptation is creating 'a hybrid management space' that facilitates knowledge exchange and potentially the improvement of local level adaptation planning. In the Swedish region of Västra Götaland it has been shown that the CAB have made more demands with respect of climate change, when assessing local MCPs which has, in some cases led to discussions about the nature of regional–local interplay in planning (Lundqvist, 2015). Moreover, an American study demonstrated that those local Californian governments that had developed mitigation plans more often had access to resources, knowledge and tools from regional governments and agencies than the ones that had not produced such plans (Heberle and Christiansen, 2010). These studies indicate that regional institutions have a potential for facilitating climate change responses. Secondly, and in contrast to this rosy picture of regional–local interplay, other studies contend that regional–local interplay is generally beset with tension (Pearce et al., 2011; Nilsson et al., 2012), since, as is the case for Sweden, regional planning actors are in a position to approve MCPs while both regional and local planning actors are struggling to get an initial grip on climate adaptation needs and approaches (Nilsson et al., 2012; Uggla and Storbjörk, 2012). In coastal zone management, both the inherent roles and traditions of regional and local planning actors in the Swedish decision-making landscape and conflicting policy agendas of Natura 2000 and integrated coastal zone management were shown to obscure effective policy-making (Storbjörk and Hedrén, 2011). Thirdly, new institutional arrangements for regional–local interaction in the governance of climate change adaptation in Sweden, such as mandating the CABs to coordinate climate responses in their region, have been implemented recently (Keskitalo et al., 2012; Nilsson et al., 2012). Still, there is a need for more systematic studies on the regional–local interplay in spatial planning. Pinpointing the characteristics of such interplay is the key objective of the study at hand. Our working hypothesis from these previous studies is that the new regional–local interactions evolving in spatial planning will involve tensions, relating to the different roles, ambitions and mandates of the actors involved.

Besides the climate governance literature, we have, in our empirical exploration, found Young's (2006) writings on vertical interplay among scale-dependent environmental and resource regimes to be useful for characterizing the interaction between regional and local planning actors. In brief, Young has identified five major types of scale-dependent interplay in the face of frictions and conflicts:

- *Dominance* refers to a situation when one actor or regime operating at one level dominates other actors or regimes operating at other levels, and may be rooted in constitutive rules that give one actor or regime formal authority over others, or in other hegemonic relations due to access to resources etc.
- *Separation* is instead about emphasizing and enhancing the formal boundaries and to specify the scope of authority of each actor or regime.
- *Merger*, as a contrast, is based on the idea that cross-level tensions can be managed by a more integrated and/or merged process.
- *Negotiated agreement*, on the other hand, is about the creation of some sort of hybrid regime with new, clearly recognized and mutually agreed roles and rules for the actors/organisations involved.
- *System change* refers to a situation where tensions in cross-level interaction sparks a wider and deeper change in the overarching institutional settings in which they are embedded (Young, 2006).

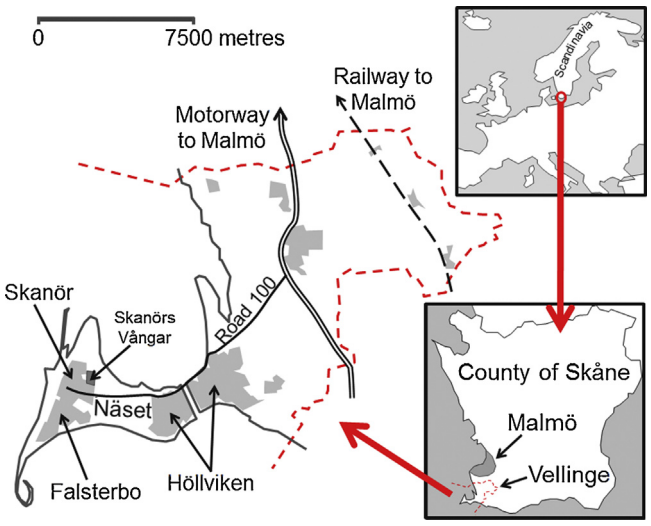

Fig. 1. The location of Vellinge municipality with the Näset peninsula. Vellinge is a satellite municipality to the larger Swedish town Malmö and Danish capital Copenhagen, to which many inhabitants commute daily. Vellinge's geographical location makes many high property values – and a significant share of its population – exposed to sea level rise.

These concepts are used as a point of reference in the discussion about our empirical findings.

4. Case study and research design

Vellinge municipality is located on the coast in south-west Sweden, in the County of Skåne, about 20 km south of Malmö (Fig. 1). Vellinge supplies the Malmö and Copenhagen region with manpower through daily commuting; the E6 motorway, for instance, runs between Malmö and Vellinge, with commuter buses operating at a high frequency. This region is ranked among those with the highest regional adaptive capacity in Scandinavia given its larger population, resources, wealth, technology and knowledge, which should not be confused with real action (Juhola et al., 2012). The small community of Vellinge is the administrative centre of the municipality. In the municipality there is also the peninsula Falsterbonäset, locally called Näset, and on its edge lie the two, now fused communities of Skanör and Falsterbo. Näset is known for its scenic beauty, beaches with dunes, expensive beachfront properties, affluent property owners, bird-watching paradise, a large proportion of natural protected land and scenic golf-courses. A large proportion (63%) is arable land containing some of the most fertile soil in the country. Much of the total area is protected, 60% including marine reserves. In terms of area, the municipality is one of Sweden's smallest, and in terms of total population it is ranked 72nd. One of the municipality's future aims is to grow modestly, by about 1% per

Table 1
The number of respondents' with their position and employer.

	Authority		Sum
	Local Vellinge	Regional CAB	
Officers	6	3	9
Managers	3	0	3
Politician	1		1
Documents	2	1	3

annum, whereas many other Swedish municipalities are planning for greater population growth. Moreover, Vellinge was the 10th wealthiest of Sweden's 290 municipalities, based on the average of the final tax for the population aged 20 and over in 2010, and it came 4th in terms of greatest average net wealth per person in 2007 (SCB, 2014). In terms of exposure to climate change impacts, SLR will affect a large part of the local population, due to the siting of the houses.

There are at least three reasons why zooming in on the planning processes surrounding the Vellinge MCP is rewarding. First and foremost, Vellinge is a rich case that illustrates many of the complexities characterizing the governance of climate change mitigation in a commuter city and adaptation as severely affected by SLR. Second, Vellinge was about to adopt a new MCP that rendered an interesting interaction on climate change-related issues with the CAB. Such interaction provides an opportunity to study the vertical administrative interplay between the local and regional administrative levels concerning climate change. Third, Vellinge municipality has been identified as a municipality with high ambitions concerning climate-change issues in general (Thoresson, 2014) combined with long-lasting political stability (right-wing conservative majority).

We apply a qualitative case study-approach. According to Creswell (2014:14) a case study is *'a design of inquiry [. . .] in which the researcher develops an in-depth analysis of a case, often a program, event, activity, process, or one or more individuals. Cases are bounded by time and activity and researchers collect detailed information using a variety of data collection procedures [. . .]'*. Here, depth, activity, process and a bounded time frame correspond well to the aim of our study. The paper builds on a case study of the interplay between regional and local actors involved in spatial planning. At the time of the study, a new MCP was under development in Vellinge, which presented a good opportunity for discussing the role of spatial planning for climate change. Concerning the methodology applied, our objective has been to follow Baxter and Eyles' (1997) work concerning rigor and trustworthiness in qualitative studies using interviews. However, following their structure dramatically increased the body of the text for the methodology section, hence the appendix. For a detailed description of how the interviews were conducted and other methodological aspects related to e.g. validity, reliability and so on see Supplementary Appendix A.

The empirical data consist of three official planning documents from the local land-use planning process. The new MCP *Vellinge Comprehensive Plan 2010* (Vellinge, 2012, 2013a) that was developed in May, 2010 and were issued for public consultation in February 2012. The CAB written response to the MCP from September 2012 (CAB, 2012), and the Vellinge response to the pronouncement in October 2012 (Vellinge, 2013b). The Municipal Council adopted the MCP in January 2013 and it entered into force in June 2013. In addition to the planning documents, we conducted one focus group interview and seven individual interviews with local and regional officers involved in spatial planning; see Table 1. For simplicity, these categories are referred to hereafter as either local or regional planners. In this case, the first 90 min of the focus group session turned into a group interview (Parker and Tritter, 2006) with no joint discussion. The moderators then had to intervene with a multitude of questions eliciting individual answers. When one of the managers left the focus group, the discussion became more free and unconstrained, turning the group interview into a focus group session. The individual interviews lasted about 45 min on average and followed the same interview guide as for the focus group. The focus group discussions and interviews have been professionally transcribed ad verbatim. The transcripts are here treated as primary material together with the official planning documents.

The systematization of all data in themes was performed using content analysis with both an à priori (interview protocol) and an inductive (transcriptions) approach. Furthermore, strong agreement among the researchers regarding themes ensured good reliability (Ryan and Russel Bernard, 2003; c.f. Denzin, 1970). The themes we identified will be discussed in relation to the climate governance literature and Young's (2006) five characteristics of institutional interplay.

5. Results

This empirical section begins by establishing spatial planning as an arena for managing responses to climate change. Subsequently, two sections – one related to sustainable transportation and one to coastal zone management – present the emerging strategies for handling these two concerns and the tensions created between and within local and regional planners.

5.1. Establishing spatial planning as an arena for managing climate change responses

The local planners interviewed all refer to local spatial planning as a central arena for managing climate change responses. When asked about the key overall tasks for spatial planning, they raised several issues, for instance, *'guaranteeing a good living environment'* for current and future generations, *'taking protective measures'* so as to be able to meet upcoming problems as well as to safeguard a land use development with well-functioning transport infrastructure and housing. They also noted another task for spatial planning, namely to guarantee local flexibility and manoeuvring space. They all gave a clear account of their spatial planning as being action-oriented, hands on, i.e. only few strategic documents guiding the direction of spatial planning. The interviewees generally agree that their spatial planning worked smoothly, due to the sheer size of Vellinge and the tradition in its municipal administration of managing issues directly through face-to-face meetings and dialogue. This all contributes to a view of spatial planning in Vellinge as fast-moving, acting when relevant opportunities arise.

The regional planners also viewed local spatial planning as important for managing climate change responses. They contend that their overall task was to filter down the global climate change agreements to the local level, as was illustrated by this representative quotation: *'Thus, in my job, it then becomes sort of [. . .] that we need to reduce the variety of emissions, therefore [physical planning] is quite central [. . .]'*.

The regional planners also see their tasks as including that of making local/municipal planners aware of the bigger picture, i.e. not contradicting national goals and legislation, and reflecting upon the long-term consequences of suggestions put forward in local plans. A regional planner holds that: *'maybe I can understand the frustration, but I also think that we cannot do as we did 20 years ago, now that we know and can do more [. . .] We cannot just expand the road network based on the conditions prevailing 20 years ago, because that will not be money well spent or land well used, and it will have unwanted effects'*. In terms of strategies, the views of regional plan-

ners are similar and indicate a quite clear order of priority. The clear strategies are exemplified with the quotation from one regional planner: '*it is about how to plan by using densification, and to avoid scattered settlements and to build close to public transport and such, it's like the basics then. And then in terms of adaptation, you do not build in areas at risk, for instance from rising sea levels, you keep the buildings away from the coastal area but also from rivers where there is a risk of flooding*'.

Our interviews indicate increasing tension in views on how climate change responses are to be managed through spatial planning. One regional planner said: '*during my time working here, we've really come to take a stricter line about relating municipal actions to the environmental objectives*'. In line with this, another regional planner meant that previously there were closer and more informal ties between planners at the local and regional levels respectively, and that the situation today has grown more formal.

The evolution of the new MCP captures the recent turn of events in the municipality. It was under consultation at the time of our interviews. The MCP is a visionary document pointing out the direction for land-use and water management in Vellinge for the coming 15 years, with an outlook to 2050. Three visions are intended to guide land and water use: (1) To create and strengthen 'the good living space' so that everyone, young and old, will want to live in, visit and work in Vellinge during all stages of life. (2) To create a good living environment, where freedom and means to implement ideas and dreams are bigger for everybody! (3) To identify opportunities and promote creativity! Even if the MCP is not a legally binding plan, it is '*. . .the important governing document*' according to one municipal planner. This is in line with the foreword of the MCP stating that *'Our aim is to present a clear MCP that gives us support to maintain and develop the municipality's attractiveness and values by controlling the development of the municipality so that it grows modestly and sustainably*' (Vellinge, 2012: 2). In its written response regarding the MCP, the CAB notes that the MCP draft did not meet the national standards completely with regard to various regulations. In doing so, they followed their mandate. In the municipality's subsequent response to the CAB they used formulations implying that the CAB was interfering and exceeding its authority, showing that vertical institutional interplay is far from unproblematic. Another CAB interviewee said *'I can imagine the Vellinge people thinking the CAB were poking their noses into something Vellinge had as a visionary document. [. . .] We scrutinise a number of comprehensive plans, but they differ a very great deal, and the Vellinge one, had an own approach*'.

According to the source material, tension between the local and regional authorities can particularly be filtered down into two areas, namely sustainable transportation and coastal zone management, which are the topics of the two subsequent sections.

5.2. Strategies and tensions in sustainable transportation

When it comes to climate change mitigation, transportation is one of the key issues in Swedish municipalities. In Vellinge, local plans and planners identified transportation as a strategic issue to work with and to develop new public transport solutions, for instance, the MCP emphasises *'reducing commuting to work with private cars, increasing car-pooling*' and *'expanding and improving commuter access to public transport, including rail traffic to Malmö*' *and the 'development of modern and sustainable infrastructure, with emphasis on improved public transport, preferably by rail'* (Vellinge, 2013: 6). The shift is made from a situation where public transport has previously carried little weight. This process generates the objective 'Preferable rail', which was added by local/municipal planners to the MCP after consultation with the CAB. The draft version of the MCP referred to 'improved public transport', which could mean just any public transport mode. Interestingly, though, the reduction of car traffic is framed as a health rather than climate-change concern in the MCP document.

At the same time, the MCP contains plans for expanding road infrastructure between 2010 and 2050 quite significantly, for instance, adding two more lanes to one national road (Road 100) and a new exit from the national motorway. The Swedish Transport Administration is responsible for national roads, but the planned actions are here supported by the municipality in the MCP. Our data revealed a divergence of opinions on the consequences of increased road capacity. In a written response, regional planners claim that it *'cannot infer that the proposed routes are an appropriate land use, because increased road capacity induces traffic and compromises the [national] objective of limiting the impact of traffic on climate*' (CAB, 2012: 11). The regional planners also argue that increased road capacity will make public transport less competitive. Furthermore they also raise an issue about effects of increased road capacity outside the municipality itself. Here, they state that the intended land use in the MCP draft increases the risk of the environmental air quality standard in the nearby city of Malmö being violated, particularly because of increased commuting to work by private cars. In their response to the CAB, the Vellinge municipality take a contrary view, claiming that despite 15 years of population growth commuting to Malmö has not increased. They emphasize the formal boundaries and scope of action by stating that the: '*municipality is neither mandated nor would be able to analyse and control traffic flows in Malmö and determine the fraction of that traffic that is related to Vellinge [. . .] the E6 [European motorway] is full of lorries from [the seaport city of] Trelleborg leaving for all parts of Sweden*". Furthermore, the municipality refute what the regional planners hold as axiomatic and contend that they '*do not share the view that these [new roads] in themselves will generate a substantial increase in traffic volume"* (Vellinge, 2012: 5). Neither is this counter-argument supported by statistical data nor by any other argument. Rather it is presented as an axiom. The interviews establish that the positions of the local planners diverge. Two local planners believe that road expansion will induce more car traffic and that, consequently, this compromises the ability to achieve the goal to reduce car traffic. One local planner said: *"It is a goal conflict"* in relation to climate-change mitigation.

The interviews also uncovered a weak tradition of using measures to reduce incentives for private motoring. During the interviews several such measures were mentioned, such as car-parking constraints, but the local planners noted that the municipality has 'a long way to go' to implement these types of measures, since they have not been used there before. Illustratively, one municipal politician stated that: *'It's a bit of a freedom issue, being able to get in the car and drive off when you like, drive home when you want to and do shopping on the way and that kind of thing, instead of having to depend on., well,. [the train]*'.

5.3. Strategies and tension in coastal zone management

The SLR menace is very tangible in Vellinge, as shown by several references in the MCP such as effect of current and future settlements, protected areas, and localisation of embankments. There is a clear ambition to make it possible for the residents of Vellinge to remain located in the present areas, including the areas that are most exposed to a rising sea level and that have an estimated value of millions of Euros. The local solution in maintaining this ambition is to erect embankments for the existing houses. But having identified both the threat and the adaptation measures, the MCP also propose new housing in vulnerable areas. The embankments and planned waterfront properties, however, are beset with tension, and the local and regional planners hold contradictory positions.

From the local planners' perspective the picture is clear—tackling climate change is seen as a matter of high local

political importance and thus of legitimacy and trustworthiness in relation to the public. For instance: *'An embankment needs to be built before the next election. This vision of climate impact has to be made visible, it has been politically important that the public can see that we are actually addressing the issue'*. The local planners thereby signal that climate change is under control and will be dealt with. That some measures, according to the MCP, are needed in the short term, but most in 40 to 90 years' time is commented on by a local planner who states that *'we do not want to do it [take climate adaptation measures] until they are needed, these [embankments] represent a huge investment'*. The municipality has actively engaged in knowledge production in association with nearby Lund University concerning climate change research, especially flooding and coastal zone management. The regional planners suggest that the local planners use a 100-year scenario put forward by researchers to guide their planning. The municipality does not like such far-extended adaptation planning.

The plans for constructing embankments capture essential complexities and challenges in relation to vertical institutional interplay and are beset with tension. The reason is that the CAB cannot permit building on land subject to regulations, such as nature conservation, Natura 2000 and ancient monuments, without violating national and EU rules. However, once they actually did this by permitting the establishment of a cycle lane that also functioned as an embankment. The remaining public areas left for localization of the embankments are to a great extent land thus protected. Here, one regional planner states: *'there are no doubts that this [localization of embankments] is something that we will have an opinion about'*. From the local planners' perspective, embankments are a way to respond to the vital threat of SLR, as they will protect the unique values surrounding the settlement at Näset, and *'the municipality has therefore also included some of the natural and recreational areas [within the embankments to be built]'* (Vellinge, 2012: 7).

Awareness of the diverging views of the municipality and the CAB is high, as summarized by a local politician *'[. . .] almost all embankments and all protective measures we need have to be erected and undertaken in nature reserves, and then the national agencies start saying "no, you cannot do that". What could we do then? Should we tear down the inner row of houses within the present embankment or what could we do? There are several old seaweed embankments of great historic interest in our municipality. If we construct a new embankment, where should it be localised? On top of the seaweed embankment? "No, no, no" [says the CAB]. Inside it? Then the CAB thinks, "no, you cannot do that because then the historic seaweed embankment will be flushed away when the sea level rises". Should we erect the embankment outside [the seaweed embankment]? No, because then [the CAB say that] "the historic seaweed embankment will be cut off from water and the sea"'*. This implies that the local planners view the likelihood of changing the minds of the regional planners as small and might explain why local planners may test their strategy in the EU court *'because we have been trying for so long to get a permit from the CAB, but they will not give it to us, because they have no statutory power to do so'*.

While planning for protection of already built areas that are flood-prone, the municipality is also planning for new housing in flood-prone areas that are not subject to government nature or cultural protection regulations. One new housing development in such a flood-prone area, Skanörs Vångar, was being developed during the MCP process, which is to say that the CAB had earlier approved the detailed development plan. When it comes to further new housing in low-lying flood-prone areas (such as Ljunghusen and the harbour of Höllviken) the regional planners are no longer positive, as stated by one regional planner: *'For the sake of adaptation, then, [it is important] not to build in areas that are likely to be exposed to, for example, rising sea levels, [in other words,] to keep settlement clear of the coastal area but also of watercourses which are likely to burst their embankments'*. Both a local politician and local planner see this as primarily a technical matter, even if it could result in hugely costly dwellings. One of them said: *'As I see it, if you construct the buildings so that they're three metres above a notional water level, then there's no [flooding] problem. It's [rather] an aesthetic issue and a big one at that [. . .], and [a] financial [issue]. Well, there has to be someone who wants to buy these places standing on piles in the sea or on the quaysides as in this case'*.

Our interviews establish that the local planners had expected a positive response from the regional planners concerning both the planned embankments and the proposed flood-prone waterfront properties in the MCP because of earlier permits. The changed attitude with negative regional responses gave the municipality, according to one local planner, a *'nagging feeling [. . .] of them chopping and changing.'* The municipality reaffirms that they *'expect the full support of the CAB in designing and implementing necessary measures to protect housing at Näset'* (Vellinge, 2013b: 6). Furthermore, local planners doubt that there is a regional interest in protecting housing at Näset, as these two quotations illustrate: *'The question is whether there is a national interest that Skanör should. . .survive. [. . .] It is as if you have yourselves to blame, [you] who live there'*. Another local planner said: *'It is not possible to have a dialogue with CAB about it [protecting housing] either'*.

6. Discussion and conclusion

This paper set out to analyze the characteristics of vertical institutional interplay in planning and to explore some of the tensions involved between regional and local spatial planning actors. Based on our case-study of climate change responses in the southwesternmost corner of Sweden, a country characterized by sectoral mainstreaming of climate change responses, decentralization of mandates for planning and climate change as well as a lack of designated national adaptation strategy, we found that the current interplay is complex and that the roles and mandates of regional and local actors in deciding upon appropriate ways of how to deal with climate change is clearly under negotiation. Although the possibility to generalize from a single case-study is limited, it should be noted that there are previous studies that have also pointed to similar tensions between local and regional authorities (Pearce et al., 2011) as well as between the municipalities and CAB more specifically (Nilsson et al., 2012; Storbjörk and Hedrén, 2011). Thus, this study confirms tendencies that had been identified before and provides more specific insights about the characteristics of the existing challenges. In so doing, it also opens up for a discussion about possible ways forward for the development of a smoother local–regional interplay.

As a reply to our first research question, we note that the local and regional planners in this case agree about spatial planning's important role for governing climate change responses, but the perspectives differ when it comes to how they actually frame the task and their own responsibility in climate change governance. Indeed, spatial planning is established as an arena in which climate change responses could potentially be negotiated (c.f. Measham et al., 2011). For instance, the regional planners emphasize that the national legislation must be followed, and if no such legislation is available they argue that a municipality should not act contrary to new knowledge. They see a problem related to how municipalities might continue to work in accordance to old planning norms that have not been updated in relation to new knowledge on climate change mitigation and adaptation and ask for new planning approaches where climate concerns are integrated. Instead of reproducing old planning norms, which may lead to counteractive responses, new approaches to integrating climate concerns needs to be explored. Following Young this can be seen as a way to chal-

lenge the previous domination of the local planning monopoly and instead suggests an interplay where the regional level dominates through channelling national guidelines and knowledge downwards to the municipalities. The regional actors' position can be contrasted against the local actors' perspective. True enough, they too emphasize the importance of climate change mitigation and adaptation but they have a strong focus on taking protective measures against climate risks and on preserving the current lifestyle of the residents in Vellinge. They are keen on keeping local control over spatial developments and dislike when the CAB acts in a way that interferes with the principle of local self-determination. Local actors, thus, also depict a dominance type of vertical interplay with local priorities taking precedence over regionally emphasized climate change considerations. In this respect they also point to the need of continuous separation and clarification of the scope of authority for how far the regional mandate stretches compared with principles of local sovereignty. Clearly regional and local actors have quite different understandings of the scope of change required for local spatial planning and of the responsibility of regional versus local actors in relation to climate change management. Their different perspectives can be seen as a struggle over dominance or a renegotiation of mandates for the regional–local interplay.

Our study examined two pertinent aspects of climate change in planning namely transport and coastal zone management. As a response to our second and third research questions, we found divergent strategies in relation to transport that were partly closed through the consultation process. Moreover, within both transportation and coastal zone management the parallel strategies led to tensions between the local and regional levels, which correspond to the third research question.

When it comes to transportation, the municipal strategy is to provide more climate-friendly modes of transportation without challenging car-based mobility as such. Instead, the local level expects new technology to solve the problem of private motoring and CO_2 emissions. The issue here was the degree to which the MCP should explicitly prescribe a rail-bound mode of public transportation and the timing of increased road versus public transport capacity. In terms of the measures proposed, the regional planners clearly argued that building new roads leads to an increased use of private cars and loss of land as a finite resource. Conversely, the local planners claimed that traffic will not be induced, which is in direct contradiction with current transportation research (e.g., Noland, 2001; Noland and Lewison, 2002; Cervero, 2003; Behrens and Kane, 2004; Duranton and Turner, 2011; Næss et al., 2012). Adjacent to this is the regional planners' view that an increased use of private cars will adversely affect use of public transport. The local planners' responded that they lack the mandate to control the traffic flows in other municipalities and the main problem is not private commuter motorism but rather goods traffic to and from the harbors. Altogether, transportation turned into an issue of continuous debate and discussion between the local and regional levels, with both sides questioning each other, suggesting a more negotiated disagreement type of vertical interplay.

When it comes to climate change adaptation, we found two distinct and separate strategies. The regional planners adhere to a planned or managed retreat strategy, i.e. to propose measures to decrease rather than increase exposure to SLR (Moser et al., 2012; Alexander et al., 2012). In contrast, the local planners express a protection strategy (Bijlsma et al., 1995; Pasche et al., 2008) according to which new housing located in low-lying, high-risk flood-prone waterfront areas should be protected through good engineering and appropriate investments (such as the construction of embankments, raising the ground level for new housing and/or building new houses on piles). We also found a high external dependency on private landowners which means that the local strategies cannot differ too much from the landowners' views. In practice, the municipality in this case have continued to plan for new flood-prone water-front properties and at the same time plan for the erection of embankments to protect existing settlements. The strategy to accommodate risks and progress with waterfront planning has been noted as a trend in several municipalities (Storbjörk and Hjerpe 2014). In this case, the embankments have turned into another issue of disagreement between the municipality and the CAB and we were unable to discern any signs of compromise (Knieling and Fellmer 2013). The issue of coastal zone management thus points to a situation of negotiated *dis*agreement rather than the opposite. Rather, local planners even suggest pushing the issue to the supra-national level in order to build embankments on protected sites. It is unclear whether the potential role of the MCP as a strategic instrument for reaching long-term goals related to, for instance, climate change will be fully realised.

We found a second category in relation to tensions that originated in a recent shift toward stricter regional supervision of the new MCP and that, thus, applied to both transport and coastal zone management. In the words of Young (2006) the shift is towards more dominance of the national and regional planning bodies. Our study found that this shift was increasing the tension between the local and regional planning actors. The data also demonstrate that local planning is characterized by a high degree of self-determination, where the municipality itself is able to decide all the important issues related to spatial planning almost completely on their own. Along with the framework of Young we again note how the municipality chooses an approach of dominance and separation, emphasizing the role and authority of the municipality to control local spatial planning and by various means stressing the formal scope of authority of the municipality versus the CAB. The regional planners, on the other hand, see a task in making the local level more aware of the bigger picture and reflecting on the long-term consequences of the development paths outlined in the MCP. The local planners' perspective is to a considerable extent characterized by scepticism towards regional and national authorities, and their written responses express a feeling of not being fully understood by the CAB. The tighter regional supervision that evolved along the MCP-process in this case can be interpreted as an act of dominance by the CAB, an attempt to control the municipality and force it to redirect its strategies for spatial planning in a new and more climate-oriented direction. The procedure around the new MCP could be seen as a minor step towards increasing formaliztion of local planning, but from a very informal starting point.

Calls for stricter national guidelines and/or supervision have been frequent in academia (Urwin and Jordan, 2008; Amundsen et al., 2010; Dymén and Langlais, 2013) and among Swedish climate adaptation practitioners as well (Hagnell, 2007; Dunberg and Gullberg, 2011). However, our finding indicates that stricter national supervision is no panacea in a country with a high degree of municipal autonomy. Rather, attempts for increased formalisation and control needs to be balanced carefully against the tradition of local self-determination if it should have a chance to lead to the intended outcomes. In essence, our study is thus more in line with those who have argued that lack of national guidance burdens local governments very differently, depending on their different capacities and resources at hand (Juhola and Westerhoff, 2011; Anguelovsky and Carmin, 2011; Dannevig et al., 2012). What we see in this case is that the stricter regional supervision that evolved led to intense interaction between local and regional planning actors, with local planners experiencing a situation in which regional planners had given different responses over time, giving the municipality a feeling of uncertainty and unpredictability. In view of the difficulties related to dominance as a strategy in regional–local interplay, our study points to the need for more interaction or negotiation in order to establish more common ground on how to handle

planning climate change issues in future spatial planning. Moreover, the shift towards tougher supervision of climate change issues in local spatial planning may inflict on the other roles of the CAB, i.e., coordination of climate change adaptation and preparing regional development plans. The role to coordinate climate change adaptation points to a more supportive role towards climate adaptation in the municipalities in line with the study by Dannevig and Aall (2015) that suggested that intensified boundary work between e.g., regional and local actors in the form of hybrid management space would potentially benefit local adaptation planning.

Our final research question asked what the strategies and tensions identified imply for the prospects of a smooth vertical institutional interplay capable of supporting the overall aims related to climate-change mitigation and adaptation in spatial planning. In line with Young's (2006) first type of cross-level scale dependent institutional interplay, we note that the municipality and the CAB in this case seem to be stuck in their respective positions. Along the MCP-process, they have fallen into a confrontational relationship with an increased focus on dominance and separation. This, in turn, seems to have hampered the overall work for climate change governance through spatial planning. Furthermore, our case shows that there previously existed a jurisdictional separation of remit. However, the CABs new position in taking a more active role in supervising spatial planning and to secure the integration of climate change concerns has changed the conditions for the interplay in a way that is perceived disadvantageous for the municipality, Vellinge, who perceives the situation as if the municipal planning monopoly is now being chipped away. The situation is indeed a fragile and untenable planning situation in need of change. In our case, we could find no attempt of integration, merged management, or any mutually agreed new regulations (Young, 2006). The results point at the risk that the situation might turn into a trench warfare, but there is also a chance to take this as a point of reflection and – hopefully – use the opportunity to renegotiate roles and mandates in a sense that allows for a potentially more fruitful interplay.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.landusepol.2015.12.033.

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