



# Local Environment

The International Journal of Justice and Sustainability

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/cloe20>

## Getting adaptation right – challenges and ethical issues facing planners adapting to sea level rise in southern Sweden

Anna Wedin

To cite this article: Anna Wedin (2021) Getting adaptation right – challenges and ethical issues facing planners adapting to sea level rise in southern Sweden, *Local Environment*, 26:4, 504-516, DOI: [10.1080/13549839.2021.1901267](https://doi.org/10.1080/13549839.2021.1901267)

To link to this article: <https://doi.org/10.1080/13549839.2021.1901267>



© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



[View supplementary material](#)



Published online: 18 Mar 2021.



[Submit your article to this journal](#)



Article views: 362



[View related articles](#)



[View Crossmark data](#)

# Getting adaptation right – challenges and ethical issues facing planners adapting to sea level rise in southern Sweden

Anna Wedin 

Division of Philosophy, KTH Royal Institute of Technology Stockholm, Sweden

## ABSTRACT

Sea level rise (SLR) caused by climate change presents challenges for public planners all over the world. In this study, practical challenges and ethical factors in adaptation to SLR were identified based on interviews with planners in Sweden. Six challenges were identified: lack of knowledge and human resources, lacking integration and coordination, lacking or insufficient frameworks for dealing with long-time-horizons, responsibility for implementation and financing, and goal conflicts in the process of implementing adaptation policy. These challenges are then developed into a typology of ethical factors that are of particular importance for adaptation to SLR, categorised as input-oriented, process-oriented and outcome-oriented ethical factors. The challenges and ethical factors identified in this paper are the first step taken towards answering the question of what a sustainable and ethical adaptation to SLR in the context of local and regional policy-making could look like.

## ARTICLE HISTORY

Received 31 January 2020  
Accepted 6 March 2021



## KEYWORDS


Sea level rise; adaptation; ethics; planning; public policy

## Introduction

Global mean sea levels are rising as a result of climate change. The speed and extent of sea level rise (SLR) are uncertain as it depends not only on future global emissions of greenhouse gases, but also on how the great polar ice sheets respond to climate change (IPCC 2019). The impacts of SLR will affect natural, as well as human social and economic systems, requiring adaptation of our societies to SLR (see, e.g. IPCC 2014; Leal Filho 2018). Adaptation to SLR is concerned primarily with spatial planning, and in adapting to climate change, public spatial planners face numerous challenges, sometimes called barriers, constraints, or limits (Adger et al. 2008; IPCC 2014). Previous studies have been conducted for promoting an equitable adaptation (Hurlimann et al. 2014; Graham et al. 2018), but there is a need for more comprehensive understanding of the ethical factors involved in adaptation to SLR in local contexts. This paper aims to address this research gap by identifying ethical implications of the planning challenges that arise in adaptation to SLR.

Upton (2002) suggested that planning can be understood as a complex form of applied ethics, a spatial ethics. This is because planning largely is guided by values, which is displayed in various policies or planning approaches. Following this, there is a need to develop an understanding of how key ideas in planning relate to ethics. An ethical assessment of public policy can be described as a way to systematically reflect around priorities and judgements of relative importance (Shue 2009). In the policy design literature, “values” has been identified as one of three core elements; the other two

**CONTACT** Anna Wedin  [annawed@kth.se](mailto:annawed@kth.se)  Division of Philosophy, KTH Royal Institute of Technology, Teknikringen 76, 10044 Stockholm, Sweden

 Supplemental data for this article can be accessed at <https://doi.org/10.1080/13549839.2021.1901267>

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group  
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

are “context” and “audience” (Bobrow and Dryzek 1987). Clarifying values is important to be able to both compare and develop policy alternatives and to be able to answer the normative questions of what governments ought to do and ought not to do, and what principles ought to guide decision making. This is particularly important as novel strategies for adaptation to SLR are to be formulated. In order to achieve an ethical adaptation policy, there is a need to address ethics already in the stage of policy design and seek alternatives to implementing “stock solutions” (Ferretti, Pluchinotta, and Tsoukiàs 2018).

Adaptation to climate change will largely be a local endeavour and therefore local adaptation research is needed. The present study is made on public planning in Sweden. SLR, while not historically an important problem in Sweden, is projected to pose significant challenges in the future. In Sweden, 1800 km of coastline faces an increased risk of erosion as a consequence of climate change (Storbjörk and Hedrén 2011). Moreover, almost half of the population of Sweden (49%) live within 10 kilometres from the coast, including the majority of cities and towns (Storbjörk and Hedrén 2011). In southern Sweden, citizens already face problems of erosion and intensified storms, and the magnitude of these problems will increase as sea levels continue to rise. The coast in the regions of Skåne and Halland is considered important for many reasons. Besides being home to several small and large communities, the coastal zones are also important for their unique natural and recreational values, some of which are protected by the EU as Natura-2000 areas (Simonsson et al. 2017). There is a high share of sand beaches compared to the rest of Sweden and biotopes that are unique to this environment as well as are many cultural heritage sites, including old fishing settlements, churches, old chalk quarries, port buildings, etc. (Klimat- och sårbarhetsutredningen 2007). von Oelreich et al. (2013) investigated the state of adaptation to SLR in Swedish municipalities and found that one-third lack planning documents for SLR and that two-thirds do not discuss SLR beyond the year 2100. Storbjörk and Hedrén (2011) found that adaptation to SLR in Sweden was challenged by the lack of vertical administrative interaction, the lack of coherent regulations, procedures and policy for managing coastal erosion between national, regional and local administrations, and tensions between different policy-agendas, political priorities and values. While this gives an overview of practical issues, there is a lack of understanding of the normative dimension of these challenges.

The goal of this study is to contribute to the understanding of ethical aspects that are specific to adaptation to SLR, and by increasing the understanding of these, motivating their inclusion in policy design. The research objective is to depart from experienced challenges, as identified in interviews by local planners, and discuss them from an ethical perspective, to identify ethical factors that ought to be addressed in adaptation policy. The paper is structured as follows. In the next section, the methods used to approach these questions are described. The following section presents the main challenges that resulted from the interviews are presented. These challenges are then developed into a typology of six ethical factors. The paper ends with a concluding and forward-looking section.

## Methods

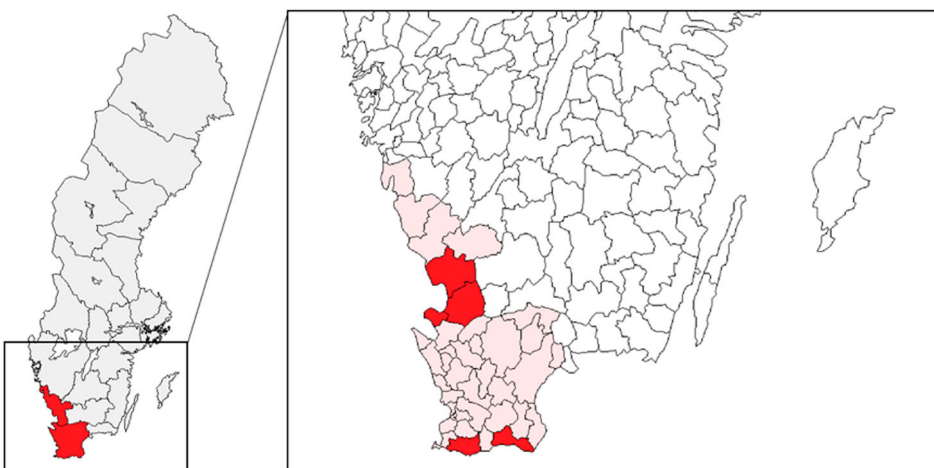
This study takes a bottom-up approach to ethics, departing from practical problems rather than normative theories when investigating the ethical dimension of public policy. Bottom-up approaches to ethics have gained influence in the last decades, and it has been argued that it enables more useful and realistic policy recommendations compared to traditional theory-based approaches (Sangiovanni 2008; Wolff 2011).

The empirical data for the study were collected through eight semi-structured interviews conducted in person at five municipalities, two county administrative boards and one local heritage organisation in September 2017. Semi-structured interviews of this kind are a suitable method in new topic areas (Eisenhardt 1989). In all, 12 persons participated in the interviews. Small-n studies of this kind allow for a more in-depth understanding of the cases and are often at the forefront

of theoretical development (Ragin and Becker 1992). The interviewees were selected from the group of organisations that have agreed to partake in *Sea-rims*, a five-year research programme funded by the Swedish Research Council Formas that focuses on a sustainable and ethical adaptation to rising mean sea levels. The selection base was one of convenience, where all project members within a geographical area were asked and agreed to participate (see Figure 1 for a map of participating actors). Including municipalities, county administrative boards, as well as a cultural heritage organisation was thought to widen the perspective and hence include a broader range of challenges. As the interviewees already had participated in the project kick-off meeting, they had an understanding of the general research field. Because of this, it could be argued that the selected interviewees were not representative amongst local planners in terms of their knowledge levels; however, since the interview was more of a scoping nature in which challenges were merely identified, this should not affect the outcome significantly but rather be seen as an advantage.

At the start of each interview, the purpose of the research was presented as primarily identifying practical challenges from which ethical challenges could be extrapolated. The interview questions were made to be open enough to enable a general discussion on the topic. Using open-ended questions and a conversational approach is recommended to get an insight reflecting the interviewee's perspective (Yin 2018). The questions covered: background about the interviewee and their organisation; SLR in the local context; adaptation as it is currently being addressed, and how it ideally should be addressed; as well as questions on ethics, values and value conflicts of adaptation (see appendix for the translated questions). The interviews lasted for 80 min on average and were recorded and transcribed. An overview of the interviews is presented in Table 1.

The transcribed material was analysed using the qualitative and mixed-methods data analysis software NVivo (Bryman 2016). The first step was to sort the transcribed material into "nodes", which can be understood as broad categories of themes. Some quotes were categorised under several nodes. The categories were not predetermined but labelled as the material was processed. This approach is preferable from a theory-building perspective (Eisenhardt 1989). By categorising the material in broad themes such as "economic issues", "responsibility" and "organisational issues", an overview of recurring topics was provided. After having extrapolated the sections of particular interest, the results were examined more critically and the data recategorised. This was done for reasons of clarity and readability. In this step, the material was also translated from Swedish into English.



**Figure 1.** The map on the left is showing Skåne and Halland, the two counties represented in this study, and the map on the right shows the represented municipalities.

**Table 1.** Overview of interviews.

	Type of organisation	Number of interviewees, role	Time
1	Municipality	1, ecologist	54:36
2	County administrative board	1, regional planner	56:29
3	Municipality	2, environmental strategists	1:18:25
4	Municipality	1, environmental/climate strategist	1:43:44
5	County administrative board	1, water strategist	1:13:34
6	Municipality	2, head of planning and technical officer	1:46:06
7	Cultural heritage org	2, heritage specialists	1:21:02
8	Municipality	2, municipal planners	1:23:18

## Challenges for adaptation to SLR

Six categories of challenges emerged from the analysis of the interviews described in the previous section:

- (1) Lacking knowledge and human resources
- (2) Lacking coordination and integration
- (3) Unusually long-time-horizons
- (4) Suboptimal distribution of legal responsibilities for implementation
- (5) Lacking frameworks for financing adaptation
- (6) Goal conflicts

### *Lacking knowledge and human resources*

The first challenge that stood out in the interviews was that those ultimately responsible for deciding upon adaptive measures (i.e. local elected representatives) lack knowledge on SLR, including its reasons and potential impacts. Moreover, even when there is some understanding of the issue, decision-makers seem to be guided by wishful thinking. Some interviewees pointed out that when given an uncertainty range for future SLR, focus tended to be at the lower end of the range. Other interviewees have been told that discussing managed retreat is “too controversial”, which they saw as an indication that council members do not fully understand the possible extent of the problem of SLR. There is also limited knowledge on the solutions, i.e. of alternative adaptation options. While some municipalities have formulated adaptation plans in which they had begun exploring possible solutions, this is far from true for all municipalities. Knowledge and competence to work on this issue in an organisation are, in part, determined by how many working hours are spent on adaptation. In one of the studied municipalities, there is one person working fulltime with adaptation to climate change, while in another, climate adaptation becomes one of someone’s many and diverse tasks at the technical department. Naturally, this is a matter of resources which, in turn, is dependent on the size of the municipality. The municipalities in this study have populations ranging from around 15,000 to 100,000. Four of the interviewees working in smaller municipalities suggested it would be preferable to coordinate climate adaptation on a regional or national level rather than having 290 municipalities trying to develop and implement their own guidelines, as they felt they do not have the resources or the competence needed.

### *Lacking integration and coordination*

Another challenge is to integrate adaptation planning into the broader planning process. Some of the interviewees with responsibility for adaptation questions felt that they were often involved at a late stage in the decision process, when a plan had already been made. At that stage, it was

perceived to be difficult or at least much unappreciated to suggest changes. The interviewees suggested that by integrating these topics into the regular planning processes, more attention would be given to the problems, and the considerations would not be considered as inconvenient add-ons. The same goes for public involvement in the adaptation process. Within one municipality, the ambition is to implement an *integrated coastal management*, meaning broader involvement of stakeholders in issues concerning the coastal areas. In practice, this means sending out their coastal strategy to be referred for consultation to “village organisations, interest groups, diving clubs and all other kinds of stakeholders” and host a coastal dialogue once or twice a year where stakeholders are invited to partake in workshops where coastal issues are discussed. However, it was stated that it often feels like stakeholders are involved late in the process and that all parts have wasted time and resources without actually consulting each other.

Furthermore, there is a lack of vertical coordination between different organisations. One interviewee expressed that they face contradictory requirements from the county administrative board. On the one hand, the municipality is required to expand infrastructure for water and sanitation to a specific area of the municipality. Simultaneously, they are told they do not have a responsibility towards that very same area but are to let nature have its go with it. This causes tension between the different organisations; one interviewee working for a municipality described the county administrative board as “a pain in the ass”. The interviewee argued that the county administrative board prevented them from acting rather than aiding them at an early stage. With the way things are, the municipalities sometimes feel that it is better to “do their own thing”, rather than ask for help as it does not feel like they are working towards the same target.

### ***Unusually long-time-horizons***

Several interviewees stated that their organisations generally are not used to working with long-term threats such as climate change and SLR, and that this posed institutional problems; frameworks in which these issues can be addressed simply do not exist. SLR will not pose immediate life-threatening risks to people but is considered a slow threat that will increase with time.

In several municipalities, the longest time horizon used in comprehensive planning is 2030 or 2050, and no municipal plan expanded further than the year 2100. In one municipality, beach meadows were planted as a natural protection against coastal erosion with a further purpose to expand their time-horizon. However, the interviewees admitted that expanding it somewhat might be insufficient. “When we build in coastal zones”, one interviewee pointed out,

we assess the suitability looking at scenarios for 2100 and sometimes fail to recognise that the sea will continue to rise after that. When we claim virgin land, perhaps it is wiser to assess the suitability from the perspective of the worst possible scenario.

That said, people’s concern about the future varies largely. One interviewee pointed out that when discussing these kinds of problems, citizens sometimes dismiss it with statements like “I’ll be dead by then anyways”. The representatives from the cultural heritage organisation, on the other hand, represent the other end of the spectrum; since they work with buildings of high cultural value, they expect them to stand forever, and there is no temporal endpoint to their concern.

### ***Suboptimal distribution of legal responsibilities for implementation***

A further point of concern was the distribution of responsibility for climate change according to Swedish law. The interviewees expressed that the legal framework poses a challenge because it is unclear whose responsibility adaptation to SLR is, and because the distribution of responsibilities possibly can cause more harm than good. In line with the EU subsidiarity principle, planning in Sweden is highly decentralised, and like the other Scandinavian countries, municipalities have a planning monopoly. This means that they issue comprehensive and detailed plans, and detailed

development plans. County administrative boards have the role of safeguarding state interests and intervene through the undoing of plans if needed. Ensuring rule of law, municipalities are legally bound not to favour any individual citizen's interest. This has posed some questions with regard to how far municipalities can go to protect individual properties against erosion and SLR.

In line with the municipality not favouring individual citizens, the legal responsibility for protecting property against SLR lies on individual property owners. The fact that the legal responsibility lies with the individual was questioned by the interviewees on the basis that the average citizen does not have the required competence to address an issue like SLR, nor the motivation to take it on in comprehensively. In fact, citizens generally are unaware of this responsibility and seem to expect that they will be protected by the authorities; be it the state, the county administrative board or the municipality. All interviewees expressed a worry that this division of responsibility could lead to more harm than good; the interviewees mentioned several more practical challenges that arise if individual property owners choose to take adaptive action. If individual property owners act, it is possible that their actions will have negative effects downstream. This is particularly true of hard protection which can increase erosion in other places.

Furthermore, the interviewees at the municipalities felt that the legal framework does not help them take responsible decisions. Sweden's Planning and Building Act states that municipalities are responsible for ensuring that construction is taking place on suitable land. A straightforward way to limit future effects of SLR is to limit construction in areas that will be flooded. This can be achieved by not giving building permits to building below a certain elevation. This assigned limit is sometimes higher, but most often the same as the recommendation from the county administrative board, as they have the right to overhaul decisions made at the municipal level that they find do not live up to the legislation. However, this legal responsibility is temporally finite. Currently, when a municipality passes a zoning plan, they are responsible for suitability of the land for the next 10 years, and if it proves not to be suitable, then the municipality is liable for compensation. After 10 years, the legal responsibility is transferred to the property owner. Were this liability to extend further, say 20–30 years into the future, the interviewees speculated it would incentivise the municipalities to think twice about granting permission for areas at risk of future flooding and erosion. That said, even 20–30 years is a short time-horizon; as one interviewee pointed out: "when you start using undeveloped land, you will be there forever. It is irrelevant to look to the life length of the actual building or the infrastructure, because it will be there, and so will the responsibility".

### ***Lacking frameworks for financing adaptation***

In the interviews, an anticipated problem was brought up: those working with adaptation to SLR feel that there are lacking frameworks regarding financing. One of several options to deal with this collectively that was brought up in the interviews is to fund adaptation through taxes. This could either be done locally, with municipal taxes, or centrally with a national tax. Regarding a local tax, and local financing in general, one of the interviewees stated that as a municipality, they already struggle in maintaining and providing some basic services, since many property owners are permanent residents elsewhere, thus not contributing to the municipal tax. The interviewee mentioned different alternatives to circumvent these problems: one option is to charge affected people fees for adaptation, as is done with other services today, such as water and waste management, another is to have a national redistributive tax policy, as a way to provide municipalities with the means they need in order take the responsibility they have been assigned.

A number of other specific issues on the topic of financing adaptation and compensation were discussed. For example, how we should account for those who are not property owners. If a rental house is flooded, this will have consequences not only for the property owner but also for the tenants, who might have less capacity to compensate their losses. Furthermore, the interviewees pointed to the difference between making sure that those who already live by the sea will be protected, and on the other hand, protecting those who build in these areas now and as such knowingly

placing themselves at risk. One interviewee asked: “Should the municipality really take responsibility for those who want to live in an attractive area today, which will not be as attractive, but rather quite wet in 20 years?” Another interviewee told an anecdote where someone had called her and asked “How the hell do you plan in this municipality? Don’t expect those of us living inland or on safe elevations to pay for those bastards who live out there by the coast”. While there was a consensus among the interviewees that there should be a shared responsibility to deal with SLR to protect the vulnerable, some expressed that individuals who are aware of the risk do not quite deserve help from society.

Several interviewees mentioned the role of insurance companies in motivating change and limiting building in coastal zones. Currently, there are no insurance companies that value the risk of SLR so high that it affects the insurance premiums. A few interviewees, however, speculated that insurance premiums could become an important economic instrument in preventing people from building in low elevated coastal zones. Similarly, banks could vary their loan conditions to require higher security for houses that are located in risk zones. These kinds of economic incentives were requested by the interviewees representing municipalities and regional authorities as a way to make their job easier, as they currently find themselves trying to prevent people from exploiting this land.

### **Goal conflicts**

Since resources are not endless, adaptation (at least some kinds) would have to happen at the expense of something else. Municipalities have many questions that they need to work with, including healthcare and education, and the interviewees expressed that politicians often do not see adaptation to climate change and to SLR as a prioritised issue in relation to these. Several interviewees indicated that politicians sometimes seem reluctant to promote long-term issues such as climate change, not only because there are more pressing issues but also because there are issues that are more popular among the electorate. One interviewee expressed that in local politics there is no room for being visionary: “one is almost ridiculed if one talks about visions”.

This non-visionary pragmatic approach is also reflected in how economic growth is put ahead of other interests, such as promoting natural values. As mentioned, it is attractive to live by the coast, which means many municipalities choose to develop the areas nearby the beaches to attract people to their municipality. One interviewee, describing this, pointed out that if we build close to the water there is no space for beaches to maintain natural processes and that we should save the land behind the beaches as untouched as possible in order to ensure that there is room for beaches to retreat. This way we can prevent what is known as coastal squeeze.

Generally, there is a concern that environmental issues are not considered important, and one interviewee stated: “sometimes things like the environment and biology are seen as something cute and ‘fluffy’ and sort of like ... soft values”. Different ways to increase the importance of environmental issues in relation to economic growth were pointed out. The idea of ecosystem services was discussed, and it was pointed out that it is, in fact, quite an anthropocentric concept. Another possibility is to view natural entities as rightsholders, and that we have a responsibility to protect these rights. A third way is to try to value the environment in economic terms. A pragmatic motivation for this is stated by one interviewee: “everything is measured in money these days, and if nature is given an economic value too, it will have better conditions”.

In conclusion, the results illustrate that adaptation is a challenging venture by its nature and within the studied institutional and legal frameworks.

### **A typology of ethical factors for local adaptation to SLR**

In this section, these challenges will be discussed in relation to six “ethical factors”, meaning ethical aspects that are particularly important in adaptation to SLR. The purpose is to further the understanding of questions those working with adaptation need to consider promoting a sustainable

and ethical response to SLR. This can, in turn, inform a theory for an ethics of adaption planning. The ethical factors are classified as being primarily input-, actor-, and outcome-oriented, and are discussed under these three headings (see [Table 2](#)).

### **Input-oriented ethical factors**

Before we discuss ethical issues of who should be doing what, or what the desired outcome are, we need to address the input to a decision in terms of what information decision-makers use. Two key components at this stage are ethical factors related to the stance decision-makers make towards uncertainty, and the unusually long-time-horizons that are defining for the problem of adapting to SLR.

(1) *Uncertainty* creates epistemic- (knowledge) related questions. For example, do policy-makers (and people in general) have a moral duty to educate themselves in the light of climate change, in order to be able to take important decisions? Is it justified to refrain from acting just because one has a lacking understanding of the challenge ahead? After all, doing nothing is not necessarily morally neutral. Planners are also challenged by the scientific uncertainty of the extent and pace of future SLR. As was clear from the interviews, decision-makers want definite numbers, but these are not available because of the uncertainty surrounding future SLR. When a problem is surrounded by uncertainty, this tends to increase the moral leeway. This means that a larger selection of permissible alternatives is open to the agent, sometimes including the alternative to do nothing or postpone the decision (Hansson 2013).

One strategy to manage uncertainty is to be “rather safe than sorry”. For example, this could imply avoid building in areas that might be flooded in the future. This kind of stance towards uncertainty is captured by the precautionary principle, which is a guiding principle in the European Union legislation in other areas, but has so far not been formally applied to spatial planning for SLR in Sweden. Another approach is based on finding flexible (or “adaptive”) solutions (Carlsson-Kanyama, Wikman-Svahn, and Mossberg Sonnek 2019) O’Brien and Selboe (2015) state that “end-state solutions to the problem of climate change may be doomed to fail from the start”. Approaching the problem in a way that is more sensitive to changing conditions and circumstances enables a fairer distribution of costs and benefits across generations.

(2) *Unusually long-time-horizons* is another problem that exacerbates uncertainty as well as creates challenges of its own. The majority of the interviewees stated that they do not have the organisational frameworks needed to address problems that are anticipated at a point in the (relatively) far future. This is congruent with the findings of a study that found that “there is a mismatch between climate impacts and planning horizons” in Swedish municipalities (von Oelreich et al. 2013). Of course, it is difficult to plan far into the future, given the uncertainties involved. Yet, if we do not address some of these problems today, we will place the burden on future generations. Postponing adaptation indefinitely is thus an issue of intergenerational justice. In practice, a fairly simple and straightforward way to motivate decision-makers to look further into the future would be to begin by changing regulations for e.g. comprehensive plans to force planners and decision-makers to address issues in longer time-horizons, thus forcing them to acknowledge long-term problems. The mentioned time-limit for liability of the municipality for assessing the suitability of land

**Table 2.** Typology of ethical factors in adaptation to sea level rise.

Category of ethical factors:	Need to address:
Input-oriented ethical issues	1. Uncertainty
Process-oriented ethical issues	2. Long-time-horizons
	3. Responsibilities
	4. Procedural Justice
Outcome-oriented ethical issues	5. Distributive justice
	6. Values at stake

could also be extended. While some of these actions are better addressed at a central legislative level, awareness of them will also benefit the local planner.

### **Process-oriented ethical factors**

This category revolves around the question of who should be involved once the problem is acknowledged and the policy process is initiated. Critical factors here include issues related to distributions of responsibility and procedural justice.

(3) *Responsibility* is commonly highlighted in the ethics of climate adaptation (see, e.g. Doorn 2017; Juhola 2019). When discussing responsibility, it is important to distinguish between legal responsibilities and moral responsibilities, as these do not always overlap. When we discuss *moral* responsibility, we talk about when praise or blame for acts and omissions carried out in accordance with our moral obligations (Eshleman 2001). In the interviews, it is clear that the legal responsibility does not match the interviewees' intuitions or convictions of how responsibility ought to be distributed between individuals, the municipality and the regional authorities, on moral grounds. In 2017, the Swedish government published a report on responsibilities in climate adaptation (Klimatanpassningsutredningen 2017), which did not particularly problematise the current distribution of responsibilities and was consequently criticised for failing to bring more clarity to the issue, as had been hoped for.

Especially unclear is the issue of financing adaptation, and the problem of lacking frameworks financing of adaptation measures is highlighted by several interviewees. When looking to the issue of financing adaptation we must begin by asking what this responsibility should be based upon? A related issue is financial compensation, which has been thoroughly discussed for climate policy and several grounds for distributing responsibility in this context have been put forward (see, e.g. Caney 2005). In the case of adaptation to SLR, similar questions arise and we can ask if it should be those who *benefit* from adaptation, those who have *contributed* to the problem, or those who have the *ability* or means who should be responsible for financing adaptation? Centralised climate funds have been proposed as a solution, which is motivated by the idea that everyone will need adaptation of some kind, and that a common pool or climate fund would benefit everyone and could spread the duty to compensate more fairly (Linnerooth-Bayer and Vári 2006).

Among the interviewees, there was a consensus that individuals generally lack knowledge and capacity to take on responsibility for adaptation, and that they do not deserve blame for the situation they are in. This suggests that the current legal framework is insufficient in that it places too much responsibility on individuals when it instead should be the institutional agents with the capacity to process climate change and who should be responsible to act. However, are we to centralise the responsibility for adaptation, other ethical concerns relating to risk and paternalism arise. One might ask whether individuals should not be allowed to take risks and build on land that is prone to flooding in the long run if they are willing to take that risk? Is it not their own responsibility? Do they even hold inviolable rights? There are paternalistic tendencies in wanting to prevent people living by the sea and take a risk that they deem acceptable. There is thus a balance between rights and responsibilities that need to be struck. The middle ground between giving individuals free range and a centralised system could include economic incentives in the form of higher insurance rates that motivate people to take decisions in line with what would be centrally decided. This exemplifies the increasing complexity that a multi-level governance system can involve (Bache and Flinders 2004).

(4) *Procedural justice* involves ethical concerns related to public participation and stakeholder engagement. Currently, municipalities are struggling in involving citizens in the adaptation process. Martinich et al. (2013) argue that climate change will hit the vulnerable the hardest, but yet their voices are heard the least in adaptation processes. This, in turn can lead to inefficient or unfair distributions of adaptation benefits. Studies have shown how public participation and involvement can increase acceptance for adaptation (Graham et al. 2015). Moreover, important values in

public policy, such as democracy and inclusion, are promoted. There are thus both ethical and pragmatic reasons for a focus on actors and their roles in adaptation policy. As discussed above, many of these issues can be addressed at a central level in the format of new legislation. However, it is also up to the local planner to live up to whatever responsibility falls on them, and also to involve the citizens in the policy process. Being aware of how we should think of the different actors and their moral responsibility to contribute to adaptation and the importance of their involvement is central to achieving an ethical adaptation.

### **Outcome-oriented ethical factors**

Finally, there are issues that primarily concern the outcome of adaptation policy. For example, Adger, Butler, and Walker-Springett (2017) argue that “adaptation is an ethical issue as it deals with fair processes and fair outcomes”. Key outcome-oriented ethical factors are distributive justice and values at stake.

(5) *Distributive justice* foremost concerns how harms and benefits of adaptation are distributed between different groups. Adaptation will affect people differently. For example, assuming that sea levels will rise significantly, the costs of protecting communities would be high and it is possible to imagine a situation in which a choice between different areas and subsequently different people to be protected must be made. Adaptation can affect different people differently and enhance vulnerability (see, e.g. Edvardsson Björnberg and Hansson 2013). Methods, such as social impact assessment or vulnerability maps, can help assessing how adaptation options will affect different people differently to try to ensure as fair an outcome as possible (Downing et al. 2005).

(6) *Values at stake* is another key ethical factor for adaptation. It has been said that “adaptation is fundamentally an ethical issue because the aim of adaptation is to preserve that which we value” (Hartzell-Nichols 2011). Value conflicts are not unique for adaptation, but at the very core of politics and planning. What was clear in the interviews is that planners and policy-makers face typical ethical dilemmas in having to choose between different values in the process of adaptation. But what do we value and how do these things compare against each other? The interviewees said that “soft values” generally are put aside for economic growth. This includes natural values, but also aesthetic and cultural values. This is in line with the literature which state that it is among the most demanding things for a municipality to prioritise issues like adaptation when they are seen as conflicting with other municipal ambitions. Arguably, the under-prioritisation of values like these is limiting adaptation (Adger et al. 2008). Guillaume and Neuteleers (2015) discuss the concept of cultural justice in terms of adaptation and point to an undervaluation of intangible cultural values in the adaptation process leading to maladaptation. There are several available concrete methods for working with these issues such as social and environmental impact assessments, and vulnerability mapping, as well as thorough public participation that could be used to identify a multiplicity of values. Here, the role of the local planner is crucial in identifying and balancing moral and non-moral values of adaptation and including them in adaptation policy.

### **Concluding discussion**

This study shows that planners working with adaptation in southern Sweden are challenged by lack of knowledge and human resources; lacking integration and coordination; unusually long-time-horizons; lacking or insufficient frameworks regarding responsibility for implementation and financing; as well as goal conflicts. These challenges have been analysed and underlying ethical concerns have been identified. It was found that adaptation to SLR actualises ethical issues at three main levels: input-oriented, process-oriented and outcome-oriented ethical factors. The challenges and the typology of ethical factors may be useful both for researchers and planners involved in climate adaptation, in the following way.

For researchers, the challenges identified in this paper could serve as a departure point for formulating ethics of adaptive planning. Planning can be understood as spatial ethics, and therefore the

practise of planning is a valuable departure point for formulating ethical frameworks for planning. The typology of ethical factors could guide in formulating frameworks for an ethical adaptive planning. As Upton (2002) has pointed out, many established planning frameworks can be linked to ethical theories such as consequentialism, deontology, virtue ethics and discourse ethics. He proposes that planning indeed could be inspired by elements of all; planners ought to try and maximise the good (consequentialism), they need to protect rights and follow certain principles (deontology), be guided by an idea of the good life (virtue ethics), and by communicative ideals (discourse ethics). When addressing how to meet the ethical challenges of adaptation identified in this paper, it might be valuable to see how they relate to these ideals of planning. By doing this, a first step towards achieving the value-laden intentions of planning in the context of adaptation to SLR can be achieved.

For planners, the mere identification of the ethical factors admittedly offers limited help-specific circumstances. For example, planners deliberating on whether a building permit should be granted or when faced with a value conflict between protecting the habitat of a specific species or a housing complex with several inhabitants. To do so, a substantial ethical commitment would need to be made, and justifying any such commitment is beyond the scope of this paper. The typology of ethical factors is thus not normative in any other sense than the fact that it states that these are relevant to adaptation policy design in spatial planning concerning SLR. It might, however, be somewhat useful for planners as it provides at least a tentative framework for addressing what values ought to be considered, gives an indication of where in the policy process these issues are most likely to emerge, and can inform dialogues with local decision-makers, to communicate the importance of an ethical approach to adaptation, and thus motivating action. This could be done e.g. by including an ethical perspective in municipal comprehensive planning.

Finally, the results should not be viewed as the full picture, but as one perspective on, and an indication of the complexity of a challenging issue. The planning challenges that are raised are, to some extent, dependent on Swedish legislations and regulation, but the underlying ethical factors should be considered relevant for adaptation policy in a wider perspective, at least for other developed countries and certainly for the other Nordic countries. An ambition for the future is to depart from the conclusions of this paper, to formulate policy that addresses the identified challenges and enables a sustainable and ethical adaptation to SLR. Moving forward, it will be of interest to investigate how the challenges and ethical factors can be understood in different contexts and how they interact. It would also be interesting to see how these ethical concerns can and should be incorporated into the planning process at different governance levels; should planners use checklists, develop ethical impact assessment models, focus more on code or conducts, or other ways to integrate ethics into their work? The findings in this paper provide a framework for further analysis. Adaptation to SLR is a difficult process, but the ethical perspective enables a discussion of what the extended consequences as well as the potential of adaptation to SLR can be. It gives us the tools to develop and compare policy alternatives and formulate normative statements on what governments should do. Planning is largely guided by pragmatic reasons, but ethics is a much-needed perspective in order for us to not carry on with business as usual. Making sure that we identify underlying motivations and what the potential ethical consequences of our actions are, will help us formulate policy that ensures fair outcomes and fair processes, and protects what is of value.

## Acknowledgement

This work was supported by Formas under grant number 2016-20135.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Funding

This work was supported by Swedish Research Council Formas [grant number 2016-20135].

## ORCID

Anna Wedin  <http://orcid.org/0000-0001-6338-8864>

## References

- Adger, W. N., C. Butler, and K. Walker-Springett. 2017. "Moral Reasoning in Adaptation to Climate Change." *Environmental Politics* 26 (3): 371–390.
- Adger, W. N., S. Dessai, M. Goulden, M. Hulme, I. Lorenzoni, D. R. Nelson, L. O. Naess, J. Wolf, and A. Wreford. 2008. "Are There Social Limits to Adaptation to Climate Change?" *Climatic Change* 93 (3): 335–354.
- Bache, I., and M. Flinders. 2004. "Themes and Issues in Multi-Level Governance." In *Multi-level Governance*, edited by I. Bache and M. Flinders, 1–11 & 195–206. Oxford/New York: Oxford University Press.
- Bobrow, D. B., and J. S. Dryzek. 1987. *Policy Analysis by Design*. Pittsburgh: University of Pittsburgh Press.
- Bryman, A. 2016. *Social Research Methods*. Oxford: Oxford University Press.
- Caney, S. 2005. "Cosmopolitan Justice, Responsibility, and Global Climate Change." *Leiden Journal of International Law* 18 (4): 747–775.
- Carlsson-Kanyama, A., P. Wikman-Svahn, and K. Mossberg Sonnek. 2019. "'We Want to Know Where the Line is': Comparing Current Planning for Future sea-Level Rise with Three Core Principles of Robust Decision Support Approaches." *Journal of Environmental Planning and Management* 62 (8): 1339–1358.
- Doorn, N. 2017. "Allocating Responsibility for Environmental Risks: A Comparative Analysis of Examples from Water Governance." *Health and Ecological Risk Assessment* 13 (2): 371–375.
- Downing, T. E., A. Patwardhan, R. J. T. Klein, E. Mukhala, L. Stephen, M. Winograd, and G. Ziervogel. 2005. "Assessing Vulnerability for Climate Adaptation." In *Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures*, edited by B. Lim, E. Spanger-Siegfried, I. Burton, E. Malone, and S. Huq, 69–89. Cambridge: Cambridge University Press.
- Edvardsson Björnberg, K., and S. O. Hansson. 2013. "Gendering Local Climate Adaptation." *Local Environment* 18 (2): 217–232.
- Eisenhardt, K. M. 1989. "Building Theories from Case Study Research." *Academy of Management Review* 14 (4): 532–550.
- Eshleman, A. 2001. "Moral Responsibility", *Stanford Encyclopaedia of Philosophy*. Accessed September 5, 2019. <https://plato.stanford.edu/entries/moral-responsibility/>
- Ferretti, V., I. Pluchinotta, and A. Tsoukiàs. 2018. "Studying the Generation of Alternatives in Public Policy Making Processes." *European Journal of Operational Research*. 273 (1): 353–363.
- Graham, S., J. Barnett, R. Fincher, C. Mortreux, and A. Hurlimann. 2015. "Towards Fair Local Outcomes in Adaptation to sea-Level Rise." *Climatic Change* 130 (3): 411–424.
- Graham, S., J. Barnett, C. Mortreux, A. Hurlimann, and R. Fincher. 2018. "Local Values and Fairness in Climate Change Adaptation: Insights from Marginal Rural Australian Communities." *World Development* 108: 332–343.
- Guillaume, B., and S. Neuteleers. 2015. "The Intangibles of Climate Change Adaptation: Philosophy, Ethics and Values." In *The Adaptive Challenge of Climate Change*, edited by K. O'Brien Brien and E. Selboe, 22–40. Cambridge: Cambridge University Press.
- Hansson, S. O. 2013. *The Ethics of Risk: Ethical Analysis in an Uncertain World*. New York: Palgrave Macmillan.
- Hartzell-Nichols, L. 2011. "Responsibility for Meeting the Costs of Adaptation." *Wiley Interdisciplinary Reviews: Climate Change* 2 (5): 687–700.
- Hurlimann, A., J. Barnett, R. Fincher, N. Osbaldiston, C. Mortreux, and S. Graham. 2014. "Urban Planning and Sustainable Adaptation to Sea-Level Rise." *Landscape and Urban Planning* 126 (Supplement C): 84–93.
- IPCC. 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva: IPCC.
- IPCC. 2019. "Summary for Policymakers." In *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*, edited by H.-O. Pörtner, D. C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, et al, 3–35. Geneva: IPCC.
- Juhola, S. K.. 2019. "Responsibility for climate change adaptation." *Wiley Interdisciplinary Reviews: Climate Change*. 10 (5): 1–13.
- Klimatanpassningsutredningen. 2017. "Vem har ansvaret?" (SOU 2017:42). Stockholm: Miljödepartementet.
- Klimat- och sårbarhetsutredningen. 2007. "Sverige inför klimatförändringarna – hot och möjligheter" (SOU 2007:60). Stockholm: Miljö- och energidepartementet.
- Leal Filho, W. 2018. "Impacts of Climate Change in Coastal Areas: Lessons Learned and Experiences." In *Climate Change Impacts and Adaptation Strategies for Coastal Communities*, edited by W. Leal Filho, 471–478. Cham: Springer.

- Linnerooth-Bayer, J., and A. Vári. 2006. "Extreme Weather and Burden Sharing in Hungary." In *Fairness in Adaptation to Climate Change*, edited by N. Adger, J. Paavola, S. Huq, and M. J. Mace, 229–260. Cambridge: The MIT Press.
- Martinich, J., J. Neumann, L. Ludwig, and L. Jantarasami. 2013. "Risks of Sea Level Rise to Disadvantaged Communities in the United States." *Mitigation and Adaptation Strategies for Global Change* 18 (2): 169–185.
- O'Brien, K., and E. E. Selboe. 2015. *The Adaptive Challenge to Climate Change*. Cambridge: Cambridge University Press.
- Ragin, C. C., and H. S. Becker. 1992. *What Is a Case?: Exploring the Foundations of Social Inquiry*. Cambridge: Cambridge University Press.
- Sangiovanni, A. 2008. "Justice and the Priority of Politics to Morality." *Journal of Political Philosophy* 16 (2): 137–164.
- Shue, H. 2009. *Ethical Dimensions of Public Policy*. Oxford: The Oxford Handbook of Public Policy.
- Simonsson, L., P. Liljedahl, P. Wikström, and A. Waleij. 2017. *Höga havsnivåer och översvämningar – Bedömning av konsekvenser av inträffade händelser i Sverige 1980–2017*. FOI.
- Storbjörk, S., and J. Hedrén. 2011. "Institutional Capacity-Building for Targeting sea-Level Rise in the Climate Adaptation of Swedish Coastal Zone Management. Lessons from Coastby." *Ocean and Coastal Management* 54 (3): 265–273.
- Upton, R. 2002. "Planning Praxis: Ethics, Values and Theory." *Town Planning Review* 73: 253–269.
- von Oelreich, J., A. Carlsson-Kanyama, Å. Svenfelt, and P. Wikman-Svahn. 2013. "Planning for Future sea-Level Rise in Swedish Municipalities." *Local Environment* 20 (4): 459–473.
- Wolff, J. 2011. *Ethics and Public Policy: A Philosophical Enquiry*. New York: Routledge.
- Yin, R. K. 2018. *Case Study Research and Application: Design and Methods*. Los Angeles: SAGE Publications.