Climate change challenges for SEA: A theoretical perspective

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Abstract:

This paper takes a theoretical perspective on the challenges that climate changes pose for SEA. The theoretical framework used is the sociologist Ulrich Beck's theory of risk society and the aspects that characterise this society. Climate change is viewed as a risk, and the theory is used to derive two challenges for the practice of SEA: delivering assessments and predictions; and handling differences in opinion and debate. Based on empirical evidence from document studies and interviews, the paper discusses the reflection of these theoretical challenges in practice.

Introduction

According to numerous sources, climate change is one of the major challenges facing society today. The continuous emissions of greeenhouse gasses risk causing a changing climate with global consequences such as sealevel rise and drought (Bernstein et al. 2007). Also there is a beginning discussion of whether and how the challenge of climate change should be handled in impact assessment, and how it should be integrated into SEA specifically (see for example Levett-Therivel Sustainability Consultants 2007; Risse and Brooks 2008; Wilson 2010). It has been suggested that climate change should be integrated into SEA through three approaches:

- Mitigation: assessment of greenhouse gas emissions, and how these may be reduced
- Adaptation: the impacts of climate change on the plan and how the plan may be adapted to these
- Baseline adaptation: the impacts of climate change on the environmental baseline for the SEA, and how these might influence targets and assessments. (Larsen and Kørnøv 2009)

There are indications that climate change is not currently well integrated in SEA practice. This includes a study by Larsen, Kørnøv and Wejs (2011) where it was found that climate change is mentioned in 58% of 149 SEA reports, and that mainly mitigation is dealt with. Internationally, a study prepared for the European Commission point out that in SEA "*specific attention to climate change issues appears still to be limited in many Member States*".

On this basis this paper seeks to discuss what challenges an integration of climate change in SEA poses?

For this purpose a theoretical framework based on the sociological theories of Ulrich Beck on risk is utilised. The theorical framework is mainly based on his publication, originally from 1989 and later translated into English, *Risk Society: Towards a New Modernity*. Impact assessment is

inherently about the future and can be said to be aimed at dealing with future risks or impacts in a proactive way. It is on this background that the theory of risk society is chosen, since it deals with how the character of risks - in the view of Ulrich Beck - is changing. On the basis of this it is possible to propose a hypothesis about what these changes means for SEA in terms of rising challenges.

Theoretical framework: Ulrich Becks' risk society

According to Ulrich Beck we are in a transition to what he terms risk society. In risk society, the efforts of industrial society to control dangers through science and technology lead to the creation of a new form of risks for society. (Beck 1992) For instance, nuclear energy is one of the great technological breakthroughs, but it has also turned out to be filled with risk regarding the operation as well as the handling of waste.

Beck argues that risks in risk society are different from the risks and dangers that previously characterised society. The new risks transgress former categories of time and space, where they were formerly limited to specific groups, places and times. For example, nuclear accidents affect people within a very large radius and also future generations. Thus, the new risks, because of the many actors involved and their separation in time and space, have complex and non-transparent causal mechanisms. Another characteristic of risks in the risk society is that they cannot be observed directly: "*many of the newer risks (nuclear or chemical contaminations, pollutants in foodstuffs, deceases of civilisation) completely escape human powers of direct perception*" (Beck 1992, p. 27). Thus Beck defines risk as second-hand non-experience, partly because knowledge of risk is not based on specific experience, partly because knowledge of risk is external and comes from science. Thus society is dependent on science to obtain knowledge and evidence about risk. (Beck 1992; Willms and Beck 2002)

Another characteristic of risk society is however, that science is increasingly confronted with the consequences of its own enterprise and success: "*they are targeted not only as a source of solutions to problems, but also as a cause of problems*" (Beck 1992, p. 156). At the same time, science has problems in delivering certainty and knowledge regarding risks. Thus it is legitimate that there is more than one perception of whether or not a certain risk is significant or not, which according to Beck (1992, p. 29) means that "*the sciences' monopoly on rationality is broken*". Risk is thus no longer defined solely by science; rather it is affected by "*competing and conflicting claims, interests and viewpoints of the various agents of modernity and affected groups, which are forced together in defining risks*" (Beck 1992, p. 29). In summary, science according to Beck (1992, p. 166) has become both "*indispensable to and incapable of truth*". A problematic paradox exists because society is strongly dependent on science in relation to risk at the same time as science is

increasingly incapable of offering the required assistance, and the public becomes increasingly critical. (Beck 1992)

These issues creates space for societal processes of definition, and thus for the broad public to get involved in risk definition. Risk definitions are for instance clarification of the causality behind risk, and thus who causes risk and what should be done; for example, forest decline, where some will define motoring as the cause, whereas others will define power plants as the cause, depending on their own interest. According to Beck, the utilisation of objective natural science, regardless of its failing status, is not enough in the processes of risk definition, because "*it ignores the significance of cultural perceptions and intercultural conflict and dialogue*" (Beck 1996, p. 3). Given the "*competing and conflicting demands, interests and viewpoints*" there are many different perceptions of, for instance, what represents a significant risk and which risks we are willing to accept to gain an advantage (Beck 1992). According to Beck science cannot answer these questions: "*All kinds of experts can never answer the question: How do we want to live?*" (Beck 1996, p. 4). (Beck 1992; Willms and Beck 2002)

In risk society, these processes of definition increasingly take place outside the formal democratic political frames and are instead handled in more informal arenas with the participation of e.g. businesses and the public. In this way the political sphere is expanded to what Beck terms the sub-political. According to Beck, the term sub-politics refers to "*politics outside and beyond the representative institutions in the political systems of nation states*" and therefore means direct individual participation in political decision-making rather than solely representative democracy (Beck 1996, p. 18). Sub-politics can for example result in more influence for public movements, organisations, lobbyists, experts and public officials, who advocate their version of how they want to live. (Beck 1992)

Hypothesis: Challenges for SEA in a risk society

The overall hypothesis for this paper is that a transition to risk society and thus integration of what "new risks" into SEA brings certain challenges to the forefront. The following figure summs up the theory of Beck's risk society and adds (in the two boxes to the far right) a hypothesis of two challenges that this entails for for SEA.

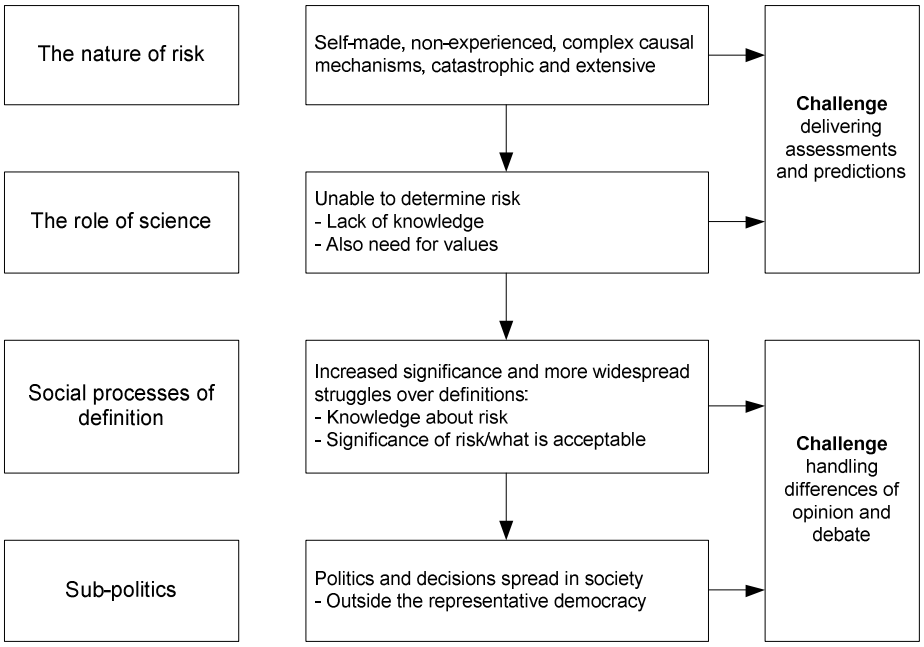

Figure 1 Summary and hypothesis of challenges

As can be seen from figure 1, the nature of risk in risk society is marked by a range of characteristics with a focus on e.g. uncertainty and complexity. This coupled with the inability of science to determine risk, due to a lack of knowledge as well as a need to incorporate values, means that it becomes increasingly challenging for impact assessment professionals to deliver predictions and assessments using the current standards and methods. Further figure 1 summarises how in risk society there is an emphasis on struggles over definitions of risk both in terms of knowledge and more value-based judgements as well as a spread of politics and decisions in society. This together entails a challenge for SEA practitioners to handle emerging differences of opinion and debate in the assessment process.

These are the proposed challenges. In this paper, climate change is viewed as an example of the new characteristics of risks that Beck proposes. This done on the basis of the following similarities between climate change and the description of new risks:

- Climate change is arguable self-inflicted (Bernstein et al. 2007, p. 37).
- Climate change is – at least to a certain degree – not detectable to our senses, and have long time horizons before they will materialise. For example the IPCC in its assessments works with a time horizon of 2100 (Bernstein et al. 2007).
- Climate change impacts are global (Bernstein et al. 2007).
- Uncertainty and complexity are connected to climate change impacts and their predictions (Willows and Connell 2003; Bernstein et al. 2007).

On this background climate change is percieved as an example of a risk following the characteristics of risk society and thus a risk which will enforce the proposed challenges for SEA. In the following section the refelction of these challenges in practice in the case of climate change is discussed.

Reflections of challenges in practice

The discussion of how the theoretical hypothesis is reflected in practice is based on a set of in depth interviews carried out with representatives from six Danish municipalities. The interviews were focussed on the SEA of their municipal plans (a comprehensive spatial plan) from 2009 where they all worked with climate change to varying degrees. The municipalities were Egedal, Favrskov, Hillerød, Ringsted, Roskilde and Aalborg.

The first challenge of delivering predictions and assessments is something which the interviewees support. Five of the six interviewees point to uncertainty and complexity as a challenge. Especially in relation to climate change adaptation, they point to uncertainty regarding the specific local climate change impacts, and thus uncertainty about what to adapt to. As the interviewee from Roskilde Municipality states "*there are still a lot of uncertainties about the basis. For example sea level rises, which model are we to base ourselves on?*" (Roskilde Municipality 2010) Two of the interviewees express climate change as being challenging because it is a new issue emerging on the agenda for them, as the interviewee from Roskilde states, "*it is new. Especially adaptation since focus so far has been on CO_2*" (Roskilde Municipality 2010). The interviewee from Aalborg adds that climate change as an issue is difficult to relate to as it is not very concrete, at the same time she points to the fact that there are multiple scenarios to deal with and in some of them the consequences are possibly quite severe (Aalborg Municipality 2010). Scenarios are mentioned by three of the municipalities. They express the challenge of dealing with multiple scenarios for development or choosing one scenario. In Egedal Municipality a clear national decision on which scenarios to use is requested, also on a basis of having experienced internal differences in opinion about which scenario to use (Egedal Municipality 2010).

Regarding the proposed challenge concerning handling differences of opinion and debate this is not something which the interviewees recognise. In Roskilde and Favrskov municipalities there has been a positive attitude expressed by the public and politicians in a pressure for the municipality to deal with climate change. This seems to be percieved by the respondents as a possitive thing that has been taken into consideration, rather than a challenge. (Roskilde Municipality 2010; Favrskov Municipality 2010) The respondents from the municipality of Aalborg states about climate change that "*there has not been much focus on it [externally], it drowns a bit in all the other issues in the municipal plan*" (Aalborg Municipality 2010). In Egedal Municipality

the experience has been similar since the respondent states that "*there are incredibly few citizens that have an opinion, but those that have are completely in line with the need to consider climate change*" (Egedal Municipality 2010). In Egedal, though, the respondent does mention that there have been some disagreements internally in the organisation and among the politicians, as mentioned above. These disagreements were settled with the help of a seminar with external experts where a consensus was reached. (Egedal Municipality 2010)

Discussion and conclusion

It is suggested on the basis of Ulrich Beck's theory of risk society that specific challenges are emphasised when dealing with climate change in SEA. These are

- Delivering assessments and predictions
- Handling differences of opinion and debate (cf. figure 1)

When reviewing the practical experiences of six Danish municipalities with dealing with climate change in SEA, it appears that mainly the first challenge listed is reflected in practice. The respondents from the municipalities either have not experienced differences of opinion and debate or do not consider it a challenge. On the other hand they do point to the uncertainty and complexity of especially climate change impacts a challenge.

There could be many different explanations for this result. Possibly the SEA practitioners do not experience very much public debate about the SEA because the debate is rather focussed on the plan itself. Further the plans which the interviews relate to are comprehensive spatial plans, which do not necessarily spark much debate to begin with because of their overall and comprehensive nature. Further climate change can be viewed as an issue which does not necessarily draw a lot of public response because it can be intangible and incomprehensible (see for example Giddens 2009; Beck 1997). This can mean that the public is more concerned about other more immediately pressing issues as also suggested in the interviews. This warrants a debate about the thesis of Beck about struggles over definitions and subpolitics (cf. figure 1) is valid at least in this specific case. Possibly things will change as the consequences of climate change begin to unfold, as suggested by the interviewee from Ringsted Municipality "*climate change will become more and more integrated the more actual changes we see*" (Ringsted Municipality 2010).

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