



Adaptive capacity of legal and policy frameworks for biodiversity protection considering climate change



Maria Pettersson^{a,b,*}, E. Carina H. Keskitalo^b

^a Luleå University of Technology, Department of Business Administration, Technology and Social Sciences, Law Unit, Sweden

^b Umeå University, Department of Geography and Economic History, Sweden

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ABSTRACT

Protection of biodiversity under conditions of climate change is likely to place large requirements on existing frameworks for biodiversity protection at both EU and national level. While these systems are not perfectly adapted today, the inclusion of climate change concerns will require revision and addition of new issues, such as species migration corridors and buffers, as well as proactive strategies in areas that may not be protected today. Biodiversity in forest is particularly important as forest range over large areas that include also other land uses; this holds particularly true for the large forested areas in northern Europe. Illustrating complexities regarding biodiversity protection, this study reviews the applicable legal framework related to biodiversity in forests on EU and national level in Sweden, one of the countries with the largest forest areas in the EU. Mainly drawing on a policy and legal study, the paper concludes that adapting the legislative and policy system to a future with large uncertainties in terms of extent of change poses a problem for what are largely reactive systems in particular in terms of legislation.

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Introduction and aim

Impacts of climate change on biodiversity are widely acknowledged as resulting in challenges for protection systems. These include changes in ecosystem dynamics and competitiveness of different species; changes in suitability of areas for different species, where species may be out-competed; the in-migration of new species, who may both change ecosystems and constitute potential invasive species; and the need for species to be able to access migration paths in what is often a very fragmented landscape (e.g. Ruhl, 2010; Cliquet et al., 2009). Changes in the climate may result in an impact on systems where variations in temperature and precipitation make habitats unsuitable for niche species, and where species may not be able to adapt, especially in case of limited migration paths or excessively rapid climate change. Adaptation to climate change is often defined as the way in which the impacts of climate change can be managed, and is to a very high extent dependent on socio-economic and political resources, including the institutional systems through which adaptations may be developed and channelled (Smit and Wandel, 2006; Smit and Pilifosova, 2001; Klenk et al., 2011). Reviews of conservation needs under climate change suggest, for forest, that important ways to support

adaptation include reducing existing stressors, promoting biological diversity and ecological function, establishing buffers and corridors for species migration and implementing proactive management and restoration strategies, as well as including climate change in monitoring and reporting systems. Such changes would need to be developed through changes in land use policy at both national and EU level, including site management and adaptation of existing conservation plans (Cliquet et al., 2009). It is also necessary to review policies for new land use to take climate change into account and take measures for species adaptation (Glick et al., 2009; Clarke, 2007).

Developing such systems place a large strain on both legal and policy systems (Keskitalo, 2010). The institutional environment is made up of both interlinked and disjointed legal and political systems, which for northern Europe include broad governance systems including international law, EU and national policy and law, as well as local practices and norms connected to these (Skelcher et al., 2005; Keskitalo, 2010). In the case of biodiversity, the formal institutional framework includes both international conventions, such as the Convention on Biological Diversity (CBD) and various EU directives, primarily the Birds and Habitat Directives and the associated Natura 2000 network. Also the Water Framework Directive forms part of the EU institutional framework regarding biodiversity protection (with regard to water quality in natural systems). In Sweden the legal systems for biodiversity protection range from generally formulated rules concerning the management of natural resources to specific regulation of special protection areas.

* Corresponding author at: Luleå University of Technology, Department of Business Administration, Technology and Social Sciences, Law Unit, Sweden. Tel.: +46 70 2209911.

E-mail address: maria.pettersson@ltu.se (M. Pettersson).

While these systems may not be well adapted to protect biodiversity even today – given limited linkages between sites and migration paths – climate change thus makes the issue of biodiversity preservation even more pressing. According to Dunlop and Brown “the current goal of preventing change to species and ecosystems is impossible to achieve under climate change; biodiversity managers will now need to choose more actively what it is they are trying to conserve” (Dunlop and Brown, 2008, p. 91). The traditional site-based conservation approach may in consequence not be able to respond to the dynamics of change. Climate change thus presents large impacts on systems which are targeted at preserving biodiversity at current, relatively limited and well-defined sites (Wilson and Piper, 2008; Keskkitalo, 2010; Cliquet et al., 2009). However, discussing how to adapt the legislative and policy system to a future with uncertainties in terms of the extent of change – i.e. not already given conditions – poses a problem for what are largely reactive systems in terms of legislation and, to a lesser extent, policy development. As a novel area of development, adaptation and future risk may here need to be integrated among multiple bodies of existing legislation – a problem that may be the most prevalent in countries where large land uses such as forest are already subject to complex legislation in several sectors (due to large established interest structures and multiple interests). Forest biodiversity has here been recognised as an important biodiversity carrier (e.g. Honnay et al., 2004). In Sweden, one of the countries in the EU with the largest forest areas, production and protection are both included as equal aims in the Forestry Act. However, possibilities to preserve biodiversity – both habitats and species – in forest areas is limited by the intensive forestry system in Sweden, where the production forest is in general only subject to general consideration implemented amongst other by forest certification aims (for instance, saving some trees and preserving dead wood during clear cutting) (e.g. Johansson and Lidestav, 2011). Sweden can thus be seen as a case where adaptation requires large integration, and where problems in integration may highlight potential concerns also more widely in the EU.¹

This study aims to define the existing institutional framework, in terms of legal regimes and policy instruments, that govern forest biodiversity in Sweden, and to identify potential implications in terms of the adaptive capacity of these systems in relation to climate change. The current system for biodiversity protection is related to changes proposed in policy with regard to the presumed need for increased adaptive capacity of the institutional systems. The study thus asks to what extent existing formal institutions such as legal and policy systems are able to accommodate unexpected and unpredictable changes and in particular changes in the future, and aims to highlight the institutional constraints of these systems.

Theoretical framework and methodology

Adaptation and adaptive capacity literature has developed over the last few decades in particular in relation to large-scale risk, including both natural hazards and climate change. This literature, developed mainly in the social sciences, targets the vulnerability of a system and the possibilities to adapt to or cope with risk on different levels (individual to system) (Smit and Wandel, 2006). While much of this literature has been future-oriented and related to opportunities to adapt to upcoming risk, in particular the social vulnerability literature has emphasised that also adaptation to future risk is to a large extent dependent on the capacities of the present system and to what extent they are able to relate to

this given their current preconditions and potential stresses from now to the assessed future condition. As a result, this literature has highlighted the need to understand our present socio-political and economic systems, as well as how adaptation has occurred in the past (Keskkitalo, 2008; Smit and Pilifosova, 2001). Smit and Pilifosova (2001) note that institutional characteristics are crucial for what adaptation strategies are chosen and how these are implemented, and other adaptation literature has noted that effective responses to climate change require institutional innovation (Rodima-Taylor et al., 2011) and that institutions can in particular be seen as mobilisers of change (e.g. Klenk et al., 2011) and thereby impact a broader adaptive capacity or “adaptability” of organisations.

However, so far, this literature has not related sufficiently to the inherent limitations in different policy systems. Gupta et al. argue that “Institutions are inherently conservative” and that they “carry the bias of previous interactions, views and power relations” (Gupta et al., 2010, p. 460). Institutions, such as laws and rules, thus carry a certain resistance to change (Gupta et al., 2010). As a traditionally more reactive area, law typically responds to issues already recognised in e.g. policy. Hence, instead of being determined in relation to the future, regulation is usually an act in response to a defined problem, and once that decision is made it will induce further steps in that same direction. Even if the institution in time becomes less desirable, it will take considerable effort to change it. The relative conservatism of the legal system is however also due to a universal requirement to uphold legal certainty and thereby the Rule of Law; implications of the legal system on individual as well as system level must be foreseeable and as a consequence law cannot be too flexible.²

The role of law in climate change adaptation is complex and has at least two sides: as “an essential vehicle for implementing adaptation policy across a range of sector and fields” and by “providing a basis for policies aimed at changing behaviour” etc. the law can facilitate adaptation (McDonald, 2011, p. 284). The law may, however, also constitute a barrier to adaptation as a result of the inertia of the system as such, but also by general legal principles, for example rights to compensation for restrictions on property rights, here among measures that significantly complicate the current land use, or complicated permitting processes (McDonald, 2011; Pettersson, 2008, pp. 13 and 21; Forsberg, 2012). McDonald (2011) furthermore notes that “[t]he responsiveness, robustness and accountability of a legal system – encompassing formal and informal rules and the agencies responsible for their design and implementation – will influence the timeliness and effectiveness of climate change adaptation strategies.” (McDonald, 2011, p. 283).

Regarding the protection of biodiversity in general and particularly with regard to climate change, the legal (and policy) action internationally as well as in the EU and its Member States is based a desire to halt biodiversity losses. To achieve the objective, rules and regulations that aim to control activities and govern behaviour in that direction are formulated and implemented, e.g. in the form of substantive provisions that restrict access to, or prohibit use of designated habitats. In keeping with the above, the degree to which these rules and regulations contribute to reaching the desired state will however depend on a number of factors. For instance compliance with overriding principles, such as property rights, or elements of conflicts with other objectives; energy policy goals to increase the production of biomass may literally be at odds with the protection of biodiversity, and the preservation of forest land may

¹ An early review of adaptation options in forestry among EU 27 indicate large differences both in development of adaptation policy as well as scale at which development of adaptation options are determined (Keskkitalo, 2010).

² See for example Swedish Instrument of Government ch. 2, s. 9–11 concerning legal certainty and s. 15 concerning property protection. See also the EU Treaty Article 5 on the principle of proportionality.

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