

Chapter 2

Futures Studies in the Field of Natural Resources

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This chapter reflects on futures studies and the role that “the future” plays in social and economic transformations. The aim of the chapter is to go into some detail on the history of futures studies, with emphasis on the futures envisaged in the forest sector and in the field of the environment since the 1950s. It situates the role of the “future” in today’s environmental debate referring to dialogs that have taken place between productivist and environmental discourses.

2.1 Introduction

The authors of this book were asked to take a long-term perspective when exploring the future of Nordic forests. The forest sector, which has planning cycles spanning several decades, has a long tradition of engaging with the distant future. Forest management in the Nordic countries has been concerned with the future consequences of present practices for the last 200 years. Indeed, investments, especially in boreal areas, where forests grow for 80–120 years before being harvested, are bound to rely on long-term estimates, forecasting, and scenarios.

In the book we link these characteristics of Nordic forestry to another set of long-term issues: the global challenges, foreseen during the last few decades, that result from demographic and economic growth, climate change, and the crucial transition

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Photo 2.1 Futures studies – a scientific approach to imagination

to a post-fossil energy system. The book is a futures study in that it aims to raise awareness in the forest sector of both the constraints and the opportunities facing Nordic forests.

From a methodological point of view the chapters of the book vary significantly, reflecting the fact that futures studies is a scattered scientific field. In their chapter on “Bioenergy futures,” Kraxner and Nordström provide a classic modeling approach that is able to explore different possible outcomes when data and external conditions are varied in the model. Malmberg makes forecasts based on demographic change by utilizing *a theory of social and economic change*. Nilsson’s analysis of land use futures is based on a synthesis of many sources, *a compilation of futures studies*. This is very different from his participatory approach in the chapter on the Canadian forest transformation, which is built on an *actual transformation of the Canadian forest sector*. Beland Lindahl explores the future in an *interview-based study on perspectives and strategies among key actors*, while Eckerberg applies a *political science approach* when discussing governance opportunities in the future. Ostwald’s contribution addresses the outlooks resulting from the new steering mechanisms in *forest-related climate politics*. Finally Sandström and Sténs make their assessment of *the future of the Swedish Forestry model* in the light of global challenges.

These contributions have at least one methodological attribute in common; they are not trying to “discover” a pre-existing future. The purpose is rather the opposite: to start an informed discussion in the present on potential solutions to the grand challenges related to energy, climate change, and land use. Possible future developments are explored with the aim of highlighting the choices to be made and the trade-offs. “The future” is seen as relatively open to human agency.

As the long-term perspective is one of the book’s main pillars, the book must be clearly positioned in the field of futures studies. A meta-discussion on “the future” is important because of the exclusive nature of futures studies as a scientific field. As the future is nonexistent, it must be constructed in the present base on conclusions from transformations of the past. To reveal “the hidden pulse of history” is the core of futures studies. Yet, historical analysis alone is not sufficient. The future is continually constructed as the result of insights, perspectives, and strategic interests among more or less influential actors. Therefore, the notion of the future, and of the future as constructed in the present, needs to be communicated among professionals dealing with the future in research and in politics.

The contribution of this chapter is to reflect on futures studies and the role that “the future” plays in social and economic transformations. For many decades, the future has been an organizing concept for debates on development and modernity; notions on the future have reflected visions and dystopias that vary over time (Anderson 2011).

Three phases of futures studies are identified;

- (i) After World War II the first systematic futures studies emerged, closely linked to the progress of industrialism. Optimistic futurism, or futurology, developed as a scientific field. The core of these futures studies was to improve the tools for prediction.

- (ii) The arrival of environmental debates during the 1960s and 1970s introduced a democratic approach to futures studies. It was based on the view that the future is yet to be decided, and can and must be consciously chosen in democratic processes. The core of these futures studies was a view of the future as being open to human agency.
- (iii) From the 1990s the idea that the future can be deliberately steered for the better was challenged by ideas of risks and uncertainty. This shift produced a new futures horizon that was increasingly concerned, not with planning for one or several futures, but preparing for unexpected developments. The core of these futures studies has been the notion of risk and uncertainty.

In the end it must be recognized that the different notions of the future have not replaced each other but developed gradually as complements forming an increasingly complex relation to the future.

2.2 From Embedded Time to Symbolic Time

The future is an essential part of any human activity, and all societies develop their own ways of coming to terms with it. These knowledge processes have multiple functions; they help structure social life and make it possible to anticipate regular and irregular patterns in society and in the nature. In pre-industrial societies, learning about the future was mainly based on understanding the repeated cycles in nature. Knowledge of the movements of the planets, climatic circles, seasonal variations, etc., enhanced predictability beyond the immediate present (Adam and Groves 2007). The expected continuity was transformed into social regularities; rituals and festivals helped anchor social life in patterns of anticipated events. Adam and Groves have made two important statements in relation to these pre-industrial futures: (i) they were embedded in place- and time-specific conditions, that is, they were localized and culturally rooted; and (ii) knowledge of them could be transferred between generations in the local society.

In the early phases of European industrialization in the eighteenth and nineteenth centuries, it was already centuries since consciousness of a world beyond the immediate space of everyday activities had started to transform perceptions and strategies in relation to the future. Money brought symbolic values into trade relationships and the concepts of interest and credit caused a definite shift in social, spatial, and temporal relationships. With increased long-distance trade, social/economic relationships were lifted and gradually disembedded from the local. As a result, notions of the temporal dimension changed. As Adam and Groves (2007, p. 10) put it:

At issue is no longer the contextual, embodied future, but a future emptied of content and divorced from context, a future that can be calculated anywhere at any time and exploited for any circumstance.

What Adam and Groves described here is a future that becomes visible as a separate dimension, something detached from ourselves and our everyday lives. What the authors describe as a “future emptied of content and divorced from context” brings to mind a discussion by Swedish geographer Torsten Hägerstrand (1985) in which he usefully distinguishes between “embedded time” and “symbolic time.” Embedded time is lived time, the daily practice in which time is intimately interwoven, taken for granted, and invisible, and therefore cannot be named or reflected upon. Symbolic time, in contrast, is what we call time and what enables discussion of the past, present, and future (Wästfelt 2006).

Symbolic time is the conceptual tool we use when observing changes. However, the distinction between embedded time and symbolic time is not clear-cut. The further we move away from activities rooted in everyday life, the more relevant the notion of symbolic time becomes. In forestry, with turnaround cycles ranging over generations, such a meta-reflection on time was already at hand during the proto-industrial era of the eighteenth century and became central to forest debates during the industrial expansion. The concept of *Nachhaltigkeit*—sustainability—had already been coined in the mid-nineteenth century to describe the eternal cycle of forest production, in which needs were considered generations into the future (Hölzl 2010). Obviously, too, the future that was envisaged was not an embodied future based on continuity and repetition but on expectations of further growth. This was more than a century before the sustainability concept was introduced into the environmental debate with its now ecological connotations.

2.3 Futures Studies in the Post-War Era

The post-World War II period is usually described as the time when scientific futures studies emerged. After the war, and with the Soviet Union and United States (USA) as pioneers, rapid technological development increased the interest in long-term planning, forecasting, scenario techniques, etc. (Skovdahl 2012). These attempts to forecast the future were largely instrumental and never developed into an epistemological basis for scientific approaches. In the 1950s they were developed as forecasting techniques, often concerned with trend projections in relation to a growing economy and expanding production of services and goods. The idea that the future could be scientifically explored by projections generated a perception of the future itself as the product of technological progress (Andersson and Keizer 2012). The futures debate of the 1950s was dominated by the idea of the continued progress of welfare in Western economies. At times, the visions were disrupted by dystopian ideas related to fears of devastating warfare resulting from the development of nuclear technologies.

In the 1960s and 1970s, the RAND Corporation and the Hudson Institute in the USA dominated the development of a “futurology,” of which Herman Kahn and Daniel Bell were leading exponents. *The coming of the post-industrial society* (Bell 1999), which was influential for several decades, was based on the notion of

scientific progress and its industrial applications as the drivers of modern society. The main interest in Bell's work, however, was not its analysis of technological progress as such, but its reading of the social consequences of this progress.

These works were directed toward improving predictions of the future, which was presented as something phenomenological, to be captured and described by futurologists. Modeling techniques were improved with quantitative methodologies and massive amounts of data. The work of Kahn and of Bell expressed the optimistic futurism that dominated the period. It presented the various stages of human development and progress, from the early phases of agricultural production, through the arrival of industrialism, to the contours of a post-industrial society.

After World War II, the ideas of the general Nordic welfare model could be fully developed. The Nordic welfare model was a modernization project linked to the shift of the labor force from the primary sector to the growing industries. The ambition was to provide equal conditions for all households in all parts of the country, while at the same time safeguarding equal conditions for individuals and households (Westholm 2010). Increased household purchasing power should function as a driver of economic growth and exports.

The forest sector, with its rapidly expanding pulp and timber industries, was an important producer of both the employment opportunities and export revenues needed for the welfare project. In Sweden, a new forest policy was directed toward increased production to meet future product demands and to provide economically for the growing welfare. Through the Swedish Forest Conservation Act of 1948, forestry became an integrated part of the modernization project. One aim was to strengthen the institutional base through a reinforcement of the National Forestry Board and the formation of a wide network of authorities and experts to implement the new policy. These attempts were based on a consensus within the forest community on both the theoretical goals and the means to achieve them: a trust in increased production following from successful R&D. In state politics, the efforts to improve the forest sector was linked to the establishment of the Nordic welfare model with its ambition, as mentioned above, of pushing industrial modernization while at the same time safeguarding equal conditions for individuals and households. The establishment of the Nordic welfare model and post-war forest politics is an example of what Scott (1998) calls “high modernism”— basically, large-scale efforts to use science and technology to order and standardize the social and natural world, and to use notions of the future to reshape the present.

2.4 Environmentalism and the Rise of “Democratic Futures Studies”

Another fertile strand of futures studies emerged in the late 1960s with the swelling popular movements concerned with peace and environmental politics. Rachel Carson's (1962) book *Silent spring* with its dystopian picture of the future, triggered a heated debate about the use of chemicals in forestry and agriculture (Lisberg

Jensen 2006). A few major scenario studies gave rise to environmental nongovernmental organizations (E-NGOs) which advanced a view of the world as a common global and vulnerable system (Anderson 2012). Not least, the Club of Rome report (Meadows et al. 1972), *The limits to growth*, triggered a worried discussion over future demographics and economic growth. As well as its attempt to forecast the future, the report also generated debate on the role of futures studies in society. This debate was highly instructive regarding the creation of futures studies in Sweden and other countries in the early 1970s, and initiated the structuring of a new area of strategic environmental research. Questions of the long term were integrated into this research landscape from the outset.

Robert Junk and Johan Galtung were leading figures in promoting the view that futures studies must be integral to democratic processes. They challenged the dominating idea of futures studies as a science of prediction and replaced it with the idea that futures studies should provide alternatives and facilitate future governance. Anderson (2012) has described the range of attempts made to establish futures studies as a scientific discipline at conferences and by establishing journals such as *Futures*. Common to these “democratic” futures studies was their connection to a rising concern for the environment. The environmental threats called for alternative modes of production and consumption.

A number of research institutions based on these new futures studies were also established in Europe in the 1970s. One of those, the International Institute for Applied Systems Analysis (IIASA), established in 1972, has since played a world-leading role in forest-related futures studies. The Institute for Futures Studies (IFS) in Stockholm was initially part of the Swedish government’s cabinet office and was established to develop democratically based attempts to address the future (Lundqvist and Carlsson 2004). The IFS was involved at an early stage of forest-based futures studies (Wirén 1985).

Some 150 years after the first use of the concept *sustainability* in the forest sector, the term was reintroduced during the 1980s in environmental politics, but with a different and much broader interpretation. It followed on from the classic Brundtland report which refers to “meeting the needs of today while protecting the rights of future generations” (*Our common future* 1987; Niestroy 2005). The Brundtland version of the sustainability concept recognizes ultimate biophysical limits to growth and acknowledges the responsibility of present generations to future generations. A Brundtland account of sustainable development challenges the traditional growth paradigm and addresses questions of justice and distribution of wealth between North and South (Baker 2006).

The environmental dialogs triggered by *Silent spring* and, later, The Club of Rome and Brundtland reports, transformed the conception of “the future” as linked to development and modernity. They opened a discussion on various pathways to the future; natural resources were frequently discussed in the form of scenarios, expressing that making choices was both necessary and possible. Productivist approaches were complemented and challenged by a number of environmentalist approaches to natural resource management. In Sweden, the nuclear power issue mobilized all political parties, E-NGOs, think-tanks, etc., in debates, cultural production, publications,

advert; and the referendum held in 1978 on the future of the energy system turned into a nationwide argument on what kind of modernity to head for.

Environmentalism also came to challenge the highly productive Nordic forest sector. Its emphasis on even-aged monocultures with intensive management methods was increasingly questioned, being described as unnatural and sometimes as a road to ecological disaster. Politically, the position of the forest sector had been weakening since mechanization, and specialization had gradually reduced the labor force both in the forests and in the pulp and timber industries, thereby decreasing the political significance of forest-related activities during the 1970s and 1980s.

The Wirén (1985) study was an early imprint of this critical approach, leading to Sweden's 1993 Forestry Act. The Act stated that the forest as a national asset should be managed in a sustainable way ensuring good productivity while maintaining biodiversity (Regeringens Proposition 1992/93: 226, p. 3). The Act was based on the assessment that recent decades had been successful in increasing standing forest volumes and that, at the same time, the provision of forest products had added to the growth of the forest industry. Now forest management practices should also take environmental consideration and include biodiversity and esthetic and cultural values. This was an important step in the development of the Nordic forestry model, which has been recognized mainly as a compromise between productivist and environmental objectives.

However, the Nordic welfare model with its significantly high degree of state intervention was already in retreat (Palme et al. 2001) when the Nordic forestry model came through politically. Thus, while the 1993 Forestry Act endowed forestry with more complex political objectives, it was accompanied by extended private property rights; landowners could now more freely interpret and transform the new forest policy into forest management practices. The new orientation of forest policy rested on expectations that landowners are the appropriate caretakers of both productivist aims and environmental concerns. The image of the Nordic forest model as a road map to sustainable forest management spread around the world.

2.5 The Twenty-First Century: Featuring Uncertainty and Risk

The last few decades, have seen another fundamental shift in the general perception of "the future." Previous attempts to create an anticipatory basis for action have been transformed by a general demise of ideas on public planning and state governing processes. Already at the beginning of the 1990s, Beck (1992) and Giddens (1990, 1994) had developed the idea of a "risk society," based on a discussion of a new form of modernity. Beck defines a risk society as a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself. The *risk* concept aims to capture the transition from the industrial society, with its characteristic ideas on mastering nature, to a reflexive modernity, increasingly occupied

with handling the negative consequences of the industrial society. Giddens (1999) identifies a society increasingly preoccupied with the future, and with safety, which gives rise to the notion of risk. As pointed out by Lakoff (2007) and Giddens (2009), the risk society thesis leads to a different future horizon or future rationality, one that is no longer about planning for security and welfare, but preparing for uncertainty, risk, or even devastating future developments.

Over the last few decades, methodological developments in both the natural and social sciences have changed the notion of the future and how it should be addressed. Modeling techniques have developed rapidly and the global challenges now recognized are themselves transforming the basis of futures studies. The climate scenarios provided by the Intergovernmental Panel on Climate Change (IPCC) are a prominent example. Moreover, research institutions have been established across traditional scientific boundaries and ideas are being developed based on new ways of approaching interactions between humans and nature. Briefly stated, the agenda seems to be moving from one of establishing control and certainty to one of addressing uncertainty.

Social sciences have generally anticipated nature as a rather stable point of departure: natural processes have often been seen as linear and predictable. In these new research agendas dominated by interactions between social and natural systems, nature stands out as reactive and unpredictable. Flooding, storms, droughts, and diminishing biodiversity, as well as worrying data on global warming, are making their imprints on research agendas by favoring problem-based knowledge production. Emerging research institutions are being established based on recognizing increasingly complex human–natural interactions, and a new terminology indicates the development of ascendant interdisciplinary research fields. Social systems transition theory (Scoones et al. 2007), system flips (SEAC 2007), planetary boundaries (Rockström et al. 2009), ecological footprints (Ewing et al. 2010), soft collapse (Hornborg 2010), and third natures (Sassken and Dotan 2011) are all concepts that aim to capture the present dynamic character of environmental studies. Uncertainty and unexpected transitions are common themes. The futures produced within this broad field of “risk perspectives” are typically marked by long-term perspectives in the analytical framework, while the policy implications are marked by immediate urgency.

Climate change poses a fundamental time-related challenge, as costly actions must be taken in the present to prevent problems in the future—beyond the time horizon that human agency normally grasps. Fundamental to the challenges of climate change is that the advantages of using fossil fuels and releasing greenhouse gases are accrued in the present, while the costs are externalized, located in a distant future. The expected consequences are not recognizable and are “unexperienced”; they exist as an emerging insight that comes from scientific knowledge production rather than lived experience. Adding to that, the social and economic consequences of climate change are fundamentally uncertain, and there are few historical references to facilitate the outlooks.

The Swedish research program, Future Forests 2009, funded jointly by the forest industry, the strategic foundation Mistra, the Swedish University for Agricultural Sciences, and Umeå University, provides an interesting, and perhaps typical for the period, view on the utilization of natural resources. It clearly expresses the hopes for increased production that have dominated the forest sector for 150 years. Yet it also addresses the risk agenda of the twenty-first century: the trade-offs that will have to be made in relation to biodiversity; the uncertainties related to expected climate change; and the expectations for new business opportunities related to climate politics, energy transitions, and growing global demands for forest products. The program plan expresses a wish to take on board the grand challenges and the uncertainties and to transform them into the basis for another round of productivism.

One of the studies in the program addresses the different perspectives and strategies among actors in the forest sector in relation to the future. Researchers, forest company directors, public servants, or NGO actors, could be grouped into two main discursive pathways that seemed to produce fundamentally different ideas on current politics, the possible future development of the problems, and what should be done in relation to them (Beland Lindahl and Westholm 2011). One of two main schools of thought holds that there is an *abundance* of natural resources globally and that environmental problems and resource shortages can be solved by technological solutions and measures to enhance efficiency in consumption and production. Related to this perspective is the view that climate change is either not a pressing problem or that it is a problem that can be solved by technological progress. Other perspectives are more related to expected long-term *scarcity*, which can only be resolved by a more radical transformation of production and consumption systems. The scarcity may result from an actual lack of natural resources or from expectations that these resources cannot be efficiently mobilized. Related to this view are worries that current policies to address climate change are severely deficient.

2.6 Conclusions

Our notion of the future has arguably been transformed over time from one that is deeply embedded, place-specific, and rooted in everyday relationships to something that is more abstract and symbolic, although still important in steering human agency. In this chapter the changing notion of the future has been divided into three main periods after World War II.

During the first decades after the war, the first systematic futures studies developed, intimately linked to the progress of industrialism. Optimistic futurism, or futurology, emerged as a scientific field aiming to improve the tools for prediction. Methodologies were focused on modeling techniques and massive amounts of quantitative data. In forestry, the state had a prominent role in supporting this long-term view and strove, through regulations and monitoring, to extend the time horizons in the sector to encompass the turnaround cycles of the boreal forests. This

required an insight in the need for investments in the reproduction of forests in harvested areas, despite the fact that the next harvest could be expected to be 80–100 years into a distant future.

The arrival of environmental debates during the 1960s and 1970s had a fundamental impact on perceptions of the future. The basic idea that the future is something that exists “out there” and can be predicted was challenged by the view that the future is yet to be decided, and that it can and must be consciously chosen in democratic processes. Conflicting interests in relation to the future were recognized and the growth paradigm was challenged by environmental approaches to natural resource management. During the 1980s the concept of sustainability was reinvented, now with reference to ecological, social, and economic dimensions, emphasizing the role of futures studies to provide support to long-term politics and planning. From a methodological point of view this is reflected in the frequent use of scenario-based futures studies and an emphasis on communication. State intervention declined and the trade-offs between productivist and environmental objectives in forestry were increasingly placed on the landowners.

From the 1990s another shift in the perception of the future has taken place. The idea that the future can be deliberately steered for the better, which has been an essential part of modernity, was challenged by ideas of risks and uncertainty. This shift has produced a new futures horizon which is increasingly concerned, not with planning for one or several futures, but with preparing for unexpected developments. The grand challenges are presenting themselves as threats beyond the time horizons normally built into decisions in politics, planning, investment circuits, etc. The response in the forest sector has been to produce cross-disciplinary research aimed at bringing the risk-based agenda, primarily with respect to climate change, in keeping with the seemingly timeless ambition to intensify production.

The changing perceptions and strategies in relation to the future have been presented as specific for certain periods, as if mutual substitution were, in fact, possible. In reality, however, these changing views have emerged as mutually complementary, forming an increasingly complex relation to the future.

Constructions of the future are always based on attempts to interpret and organize patterns from the past to reveal “the hidden pulse of history.” These transformations of historical developments into possible futures are carried out by actors who are themselves carrying values and interests in relation to the future. In fact, dialogs over the future are always part of a struggle over ideas and values in contemporary society. Those who have the power to define the future, or colonize it with their ideas, become influential in their own time (Sardar 2010).

Over the last 50 years or so, lasting debates have been organized around the fundamental requisite of economic growth with respect to issues of scarcity versus abundance of natural resources and the externalization of environmental costs by the market, etc. This reflects a growing tension around the core of modernity which contests the idea that “we” can consciously steer the world toward ever-increasing prosperity.

The Western economies have been struggling to sustain economic growth and competitiveness while at the same time addressing environmental challenges.

Environmentally sustainable practices are incorporated into politics as long as they can be resolved without redirecting the main course of the liberal economy. Challenges and needed transitions that may be recognized as necessary, but threaten the current social and economic order, tend to be externalized in time, for example, “until 2050” or “beyond the purview of today’s decisions.” For instance, the politics of climate change has been divided into, first, strategies that are obviously insufficient to address the problem as it is described and recognized, and, second, vague acknowledgments of the need for much more radical political change to be addressed in a distant future. Thus, the future, or the temporality, is used as a tool to put political issues on and off the agenda, respectively.

The concept of *sustainability* expresses the hope for a political solution to the dilemma of economic growth and resource depletion. In politics, the idea of sustainable development has been transformed into a possible compromise: environmental sustainability has been incorporated into the growth paradigm and is now central to the idea of continuous growth. Moreover, the notion of risk and uncertainty tends to be incorporated into the economy. Pellizoni (2011), for example, argues that contemporary liberal governance operates through, rather than despite, disorder: that is, through contingency, uncertainty, and instability. Hence, it is speculative rather than predictive, and risk and uncertainty have been turned into an “empowering everyday condition.”

When advancing a 200-year perspective, Adam and Groves (2007) highlight something central to any understanding of the changing notion of the future, namely, that industrialization was accompanied by the promise of ever-increasing incomes and wealth, which it largely succeeded in delivering during the twentieth century. The future envisaged was not an embodied future based on continuity and repeated cycles but a future filled with expected developments for the better. It has taken until recent decades for the negative consequences of those efforts to advance into a discourse dominated by threats. The grand challenges are the consequences of previous actions. Those consequences are not yet here but they are already forcing us to engage with more distant futures horizons: the *actions* (the establishment of industrialism) have become separated in time from the *knowledge* of the long-term consequences, which has in turn been separated from *the consequences* as such. Governance systems are having obvious difficulties in accounting for consequences that are not yet here.

To conclude, we can see an extension of our perceived responsibilities into a more distant future while at the same time there is an increased urgency to take actions today. The distance described by Adam and Groves (2007), the knowledge, and the consequences may already be collapsing into an immediate call for action that requires radically different modes of social organization. One obvious requisite is the need for new forms of global governance: policies able to govern a global economy. These needs and transformations are reflected in the chapters that follow on the global trends of key importance to Nordic forest use.

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