

**From Weak to Strong Sustainable Development.**

An analysis of Norwegian economic policy tools  
in mitigating climate change.

by

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Bodø Graduate School of Business  
For the degree of Ph.D.

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Heidi Rapp Nilsen  
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## **Abstract**

This thesis focuses on the economic concepts of weak and strong sustainable development in relation to mitigating climate change. The overall research question is how to move from weak towards strong sustainable development. The case studied is Norwegian economic policy tools in relation to the petroleum industry.

In the main part of the thesis, various aspects of weak and strong sustainable development are analysed: methodology, ontology, ethics and historical background. This part constructs the foundation for the following three papers, which all three contribute to answer the overall research question.

Paper 1 uses circulation economics to illustrate the circular process of carbon capture and storage (CCS). The research questions are regarding how circulation economics and strong sustainable development can contribute to the preconditions for CCS. The situation today remains however, generally speaking, a long way away from recognizing strong sustainable development as an alternative to weak sustainable development. A rare exception is the arena of paper 2, the Ethical Guidelines for the Norwegian Government Pension Fund – Global. The income to the Fund originates from the Norwegian petroleum industry, and the Fund is a potentially powerful policy instrument, controlling a huge part of the world's financial assets. The research questions of this paper analyse mitigating climate change in relation to the existing ethical base of the Ethical Guidelines, overlapping consensus. Moreover, an alternative base - discourse ethics - is suggested, to address mitigating climate change in a more firm manner.

In paper 3, a theoretical model is constructed to make communication and cooperation between weak and strong sustainable development more even, than is detected in paper 1 and 2. The model is called reflexive sustainable development, and is to move the situation of today towards strong sustainable development.

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## List of abbreviations

CCS	Carbon capture and storage
DA	Discourse analysis
GHG	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
MH	Methodological holism
MI	Methodological individualism
NOU	Norwegian Official Reports
OA	Ontological atomism
OH	Ontological holism
OI	Ontological individualism
SSD*	Strong sustainable development (only in paper 3)
Strong	Strong sustainable development (in the rest of the thesis)
WSD*	Weak sustainable development (only in paper 3)
Weak	Weak sustainable development (in the rest of the thesis)

\* Request from reviewer of paper 3.

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# 1. Introduction

## 1.1 Background and motivation

This thesis focuses on the economic concepts of weak and strong sustainable development in relation to mitigating climate change. The overall research question is how to move from weak towards strong sustainable development. The case studied is the Norwegian state: its role as a producer of petroleum, while at the same time purporting to be a leading country in combating climate change.

The problem of climate change is very complex involving direct emissions of greenhouse gases (GHG), indirect emissions, adjoining environmental problems, and underlying driving forces of a varied nature: social, economic, financial, demographic, technological, cultural, institutional and biophysical. The overall research question is answered by focusing on two limited research areas: A) critical analysis of specific areas of Norwegian economic policy regarding climate change in the light of weak and strong sustainable development, and B) developing economic theory to contribute to a more informed understanding of sustainable development.

Climate change is an extremely serious global environmental problem facing the earth. This thesis builds upon the well-substantiated evidence primarily channelled through the Intergovernmental Panel on Climate Change (IPCC), that the climate change we are now facing is mainly man-made (IPCC, 2007a). “The observed widespread warming of the atmosphere and ocean, together with ice mass loss, supports the conclusion that it is *extremely unlikely* that global climate change of the past fifty years can be explained without external forcing, and *very likely* that it is not due to known natural causes alone.”<sup>1</sup> (IPCC, 2007a, p. 10) Climate change in this thesis refers to these human made changes.

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<sup>1</sup> “In this Summary for Policymakers the following levels of confidence have been used to express expert judgments on the correctness of the underlying science: *very high confidence* at least a 9 out of 10 chance of being correct; *high confidence* about an 8 out of 10 chance of being correct.” (IPCC 2007a, p.3)

However, the situation with regard to the temperature rise now looks worse than IPCC projected only two years ago (Climate Change Congress, 10-12 March 2009; O'Brien, 2009). This is primarily due to the global emission path in 2000-2008, as well as new knowledge on cumulative effects in the ocean and on land – so called carbon cycle feedbacks (Anderson & Bows, 2008; House et al., 2008).

My motivation for choosing this theme for my thesis is twofold. The first being that the main amount of man-made emissions of GHG is generated by the industrialised parts of the world, but the consequences of climate change are much more difficult to handle for poor, hot and dry countries in the southern hemisphere. The issue of climate change adds to the problems of enormous gaps in living conditions between north and south, thus placing special responsibility on the wealthiest and industrialised parts of the world (NOU, 2006:18, p. 21). However, it is now extremely unlikely to be able to avoid a more than 2 °C temperature rise above pre-industrial level, as is the expressed policy goal with regard to a new global agreement. The current mitigation policies make even a temperature rise of 4 °C demands a radical reframing of both the climate change agenda, and the economic characterization of contemporary society (Anderson & Bows, 2008, p. 3880).

The second motivation, and just as important as the first, is concern for the environment itself. It is being put under increased stress by human beings, here mainly exemplified through climate change. However, the complexity and growth of humanly induced multiple stressors is enormous. This thesis also therefore stresses that the climate must be seen as an integrated part of nature. The tendency of making marginal bits of nature sustainable – such as for instance the climate - does not ensure the sustainability of nature as a holistic system.

## 1.2 The research questions

This subchapter gives a description of the research questions of the 3 papers, called paper 1, 2 and 3 – and the connection between the papers. The conclusions of the papers are furthermore answers to the overall research question. The very last chapter offers a discussion of the conclusions of the papers, also in relation to the overall research question.

Paper 1 utilizes the theory of circulation economics to illustrate the circular process of carbon capture and storage. Circulation economics has strong sustainable development as a normative foundation. The paper also discusses other intersections with ecological economics and neoclassical economics. Paper 1 looks at two research questions. Question 1: How can circulation economics contribute to the preconditions for carbon capture and storage (CCS)? Various calculations exist with regard to the environmental effect of CCS, based on which factors or preconditions are included in the models. Circulation economics has another framework and adds other preconditions to the field, which is not taken into mainstream economic argumentation. The answer to question 1 is that if CCS does not contribute to strong sustainable development, the alternative for petroleum producers is to limit the extraction of petroleum. Question 2: Does CCS in the light of circulation economics offer arguments for unilateral initiatives? The answer is yes.

Paper 1 offers clear policy advice for mitigating climate change, which will contribute to strong sustainable development. The situation today remains however, generally speaking, a long way away from implementing this policy advice, or recognizing strong sustainable development as an alternative to weak sustainable development. A rare exception to this can be seen in the arena of paper 2, where weak and strong sustainable development are discussed in relation to each other. It is a central point of this thesis to focus on an area where both these theoretical positions are regarded with respect to practical and official public policy. “Ecological economics is committed to

policy relevance. It is not just a logical game for autistic academicians.” (Daly & Farley, 2004, p. 43)

Paper 2 is an analysis of a traditional investment regime which has taken a turn from a strictly utilitarian approach, towards encompassing deontological arguments leading to disinvestment. Utilitarianism and deontology are two ethical platforms associated with weak and strong sustainable development. The paper is a critical analysis of why contributions to climate change are not defined as severe environmental damage within the Ethical Guidelines for the Norwegian Government Pension Fund – Global (the Fund). This is due to the concept of overlapping consensus, as conceived by the philosopher John Rawls. Sovereign wealth funds are potentially powerful policy instruments, as they control a huge part of the world’s financial assets. The income to the Fund originates from the Norwegian petroleum industry. The increasing severity of the climate change situation, and the inadequacy of today’s mitigation policy calls for every possible instrument to be considered as more effective policy tools. The basis of overlapping consensus hinders a substantial and official argumentation for today’s lax praxis being brought forward with regard to mitigating climate change. The two research questions are: 1) Do the Ethical Guidelines fall within the sphere of Rawls’ idea of overlapping consensus? The answer is no. 2) What is the economic policy effect of simply removing the basis of overlapping consensus for the Ethical Guidelines, with regard to the issue of climate change? The answer is that this will enable a value-based discourse, as outlined by Habermas and Apel.

The economic arena of paper 2 is an example of a major environmental concern being drawn into the existing framework of social economic institutions. An alternative approach by environmentally concerned is to contest the institutions themselves (Giddens, 2009, p. 70). This approach is not part of this thesis.

The transfer to paper 3 is: recognizing the powerful and influential existence of weak sustainable development detected in paper 1 and 2, how does one make communication and cooperation between weak and strong sustainable development



more even? I argue that this will contribute to a movement from weak towards strong sustainable development. A joint discourse is proposed, called reflexive sustainable development, based on a common theoretical base of weak and strong sustainable development. This is in contrast to the much more common way of treating weak and strong sustainable development; as belonging to separate paradigms (Ingebrigtsen & Jakobsen, 2007; Neumayer, 2003). The paper argues why the paradigm-approach is not pursued. Having argued why theoretical compromises will benefit mitigating climate change, a model for compromises is developed. The model is constructed in the picture of a family, where both consensus and compromises amongst all members are necessary for the well-being of both individuals and the family as a unit. The family as a unit is envisaged as the coexistence of man and nature. The individuals in the family represent the components of strong sustainable development: economy and nature.

To construct a joint discourse one needs to study the arguments in the discourse of weak versus strong sustainable development. The arguments must be presented explicitly. "Science is writing with intent, the intent to persuade other scientists, such as economic scientists. (...) The choice is between an implicit and naïve rhetoric or an explicit and learned one, the naïve rhetoric of significance tests, say, or the learned rhetoric that knows what it is arguing and why. Rhetoric could of course be given another name – 'wordcraft', perhaps or 'the study of argument'." (McCloskey, 2009, p. 320) To make the arguments of both weak and strong sustainable development explicit, a discourse ethics is proposed. In this reflexive sustainable development, arguments from both weak and strong sustainable development will be considered in the discourse.

### **1.3 The origin of sustainable development**

Concepts and their meanings change as they are used and according to who uses them. This has been particularly the case with regard to environmental debates (M. Brown,

2008; Welford, 1997). Sustainable development is a good example of this. The discourse field of sustainable development has become so wide and divergent (Hopwood, Mellor, & O'Brien, 2005; Pezzey, 1997) that it has largely become non-committal. "Today, sustainable development is one of the most frequently used concepts in both academic and everyday life discourses." (Kallio, Nordberg, & Ahonen, 2007, p. 41) But the potential is still there, as articulated by Adams (2009, p. 5): "In research, it seems to offer the potential to unlock the doors separating academic disciplines and to break down the barriers between academic knowledge and policy action. It does this because it seems to draw together ideas in ecology, ethics, economics, development studies, sociology and many other disciplines." The words 'unlock the doors separating academic disciplines' is a key issue in this thesis, and there have been many calls in later years for cross-disciplinary and integrative research to achieve sustainable development: "The imperative of integration includes environmental, social, economic, and other disciplinary considerations, as well as stakeholder interests." (Dovers, 2005, p. 1)

The concept 'sustainable' originates from the Latin word *sustenerere* which means 'to uphold' (ref: finn Redclift 1993). In modern times it was used in long-term perspective forest management in Germany in the 18<sup>th</sup> and 19<sup>th</sup> century (Lafferty & Langhelle, 1999, p. 4). The origin of the word is linked to ecology and nature. Still, a crucial question is: What is to be sustained? For example, a forest that will provide a sustained yield of timber in perpetuity may not support native bird populations. Making marginal bits of nature sustainable is no guarantee for sustaining bigger ecosystems.

The concept 'development' has no generally accepted definition but came into the English language in the 18<sup>th</sup> century. By the start of the 19<sup>th</sup> century it had become a linear theory of progress, bound up with industrialism, capitalism and Western cultural hegemony (Adams, 2009, pp. 6-7). It is fair to say the word is linked to human development. But, it may be asked, development towards what? What is the goal of development? Goulet (1995, p. 38) answers this by saying: "At the ultimate level, it is illusory to expect consensus. Action need not be paralyzed, however, because

agreement is possible at the pragmatic level. Notwithstanding disagreement over ultimate meanings, all can agree that providing basic needs for all should enjoy priority over the satisfaction of capricious wants for a privileged few". This citation is uncontroversial within strong sustainable development (Strong). Within weak sustainable development (Weak), on the other hand, there is traditionally no critical debate regarding the goal of development. The normative goal of human utility, without distinguishing between needs and wants, is taken for granted. This last point will be further explained and discussed in the later chapters on Weak.

The two concepts 'sustainable' and 'development' first appeared together in the 1970's in several years of preparation of the document "The World Conservation Strategy" by International Union for Conservation of Nature and Natural Resources (IUCN, 1980) (Adams, 2009, p. 59). From then on it became a well-known concept through the report "Our Common Future" by the Brundtland-commission (The World Commission on Environment and Development, 1987). The most cited phrase from this report is: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- The concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs." (The World Commission on Environment and Development, 1987, p. 43)

The bullet points above pertain to the debate regarding prioritizing humans before nature. Again, it begs the question: what is to be sustained? In the debates going on about the report, this has been a major issue<sup>2</sup>. This is also a key issue in the debate on

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<sup>2</sup> Another critique is that the report is ambiguous. The vast majority of adherents to the report are from within the regime of Weak, but there are single statements within the report that support opposing views within the regime of Strong (Kallio, Nordberg, & Ahonen, 2007) (p.48 - 49).

Weak versus Strong. From the first bullet point it is quite clear that the report does recommend prioritizing human needs before ecological sustainability. In the school of thoughts that uses Weak, there is normally no distinction between human needs and wants. In Strong this is a major issue. This is an example of the background for the debate between Weak and Strong. The last bullet point above is also a theme in this thesis, in paper 1, questioning the ability of technology to mitigate climate change.

The two distinct versions of weak and strong sustainable development started emerging in the 1970's (Neumayer, 2003, pp. 22-24). Weak and Strong give the two components of sustainable development different weight and meaning.

#### 1.4 Theoretical base: Weak and Strong

Weak sustainable development (Weak) is characterized by the goal to sustain a constant level of consumption or utility. To achieve this goal, nature and capital goods can be substituted with each other. Neither nature nor capital has an intrinsic value, but is an instrumental value to achieve the highest possible level of utility. Weak is often called 'Solow-Hartwick sustainability' as it is based on the work of Nobel Prize winner Solow and Hartwick (Neumayer, 2003, p. 22). A main challenge is to calculate how big the compensation in capital must be for the loss of natural goods (Asheim, 1995, p. 233). This is the idea in cost-benefit analysis, a main tool in neoclassical economics also used on environmentally sensitive issues (D. Pearce & Barbier, 2000; D. Pearce & Turner, 1990). Weak belongs to neoclassical economics which has dominated the sphere of economics: "Most, but not all, economists are weak sustainabilistis" (Perman, Ma, McGilvray, & Common, 2003, p. 91).

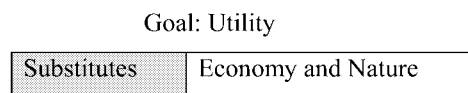


Figure 1.1: Weak sustainable development

A less common, but increasingly more used theoretical concept is strong sustainable development (Strong) (Nilsen, 2008, p. 114). Strong requires that there must be a restriction on the substitution between the economy and nature, both must be sustained. The restriction on substitution clearly pulls sustainability away from Weak and its homogenous focus on human development, in the direction of encompassing ecological values. Strong has a heterogeneous foundation which makes the qualitative different values of economy and ecology possible. This is an ontological premise of Strong.



Figure 1.2: Strong sustainable development

Strong is a foundation in several relatively new “green” theories such as ecological economics (Costanza, 1991; Daly & Farley, 2004; Gowdy & Erickson, 2005), environmental management and corporate social responsibility (Bansal & Roth, 2000; Dillon & Fisher, 1992; Welford, 2000), and circulation economics (Ingebrigtsen & Jakobsen, 2007). In addition to economics and nature, most of these theories include cultural or social values as a third sphere. In this thesis I consider cultural and social values part of the economy and nature. How we consider the economy and nature – culturally, socially, normative - is already impregnated in the different perspectives of Weak and Strong<sup>3</sup>. In this way the main debate between Weak and Strong, which is the debate between nature and the economy, becomes more focused: “The debate between strong and weak sustainability is, however, conducted mainly around environmental issues rather than taking account of socio-economic consequences.” (Hopwood, Mellor, & O'Brien, 2005, p. 40)

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<sup>3</sup> One exception is paper 1. Here the cultural dimension is instead excluded from the analysis, and not said to explain the different perspectives of Weak and Strong regarding the economy and nature (Nilsen, 2008) (p.114). However, to treat the cultural dimension the same way in paper 1 as in the rest of the thesis will not affect the content or conclusions of paper 1.

This last citation above uses ‘sustainability’ instead of ‘sustainable development’. This highlights that it is sustainable or sustainability that is the main issue; what is to be sustained, why and to what degree. The environmental focus of the debate between Weak and Strong is the theme of this paper, as exemplified by the severe situation regarding climate change.

Both Weak and Strong are presented and analysed more thoroughly in later sections, with a special focus on ontology, historical development and ethical bases.

## **1.5 Global environmental problems and policy**

The direct cause of climate change is an increased concentration of greenhouse gases in the atmosphere. But an increasing number of theories, reports and articles point to the need for looking behind the emerging environmental degradation, in search for more fundamental causes. This chapter stresses that the broader picture of mitigating climate change should be brought to the foreground. Knowledge of the drivers of environmental problems and interlinks of environmental pressure is important in mitigating climate change. But this knowledge is also important in hindering the efforts of mitigating climate change from contributing to new man-made environmental catastrophes.

### **1.5.1 Drivers and interlinks of environmental problems**

An increasingly, but still sparsely used approach for looking into the complexity of human effect on nature is to start with the drivers of environmental problems. “Drivers are sometimes referred to as indirect or underlying drivers or driving forces. They refer to fundamental processes in society, which drive activities with a direct impact on the environment.” (UNEP, 2007, p. xxii). The drivers are material-, human- and social capital, more specifically: “Demographics, economic processes (consumption,

production, markets and trade), scientific and technological innovation, distribution pattern processes, institutional and social-political frameworks and value systems.” (UNEP, 2007, p. xxii) These citations are from the well recognized report The Global Environmental Outlook (GEO). Another major contributor to understanding the complexities of humans and ecosystems is the Millenium Ecosystem Assessment (MA). Both the MA and GEO are integral parts of the environmental assessment activities undertaken in connection with the UN system. In the MA, climate change is said to be induced by several drivers such as demographics, globalization, trade, market, governance, institutional and legal framework, science and technology, and cultural beliefs as consumption choices (Millenium Ecosystem Assessment, 2005, p. vii).

Becoming aware of drivers, the connection between poverty, climate change and other environmental stress is clearly detected. A common focus amongst the many drivers, especially with regard to the industrialised part of the world, is to refer to the pattern of consumption and production. “Poverty and environmental degradation are closely interrelated. While poverty results in certain kinds of environmental stress, the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty and imbalances “ (United Nations Division for Sustainable Development, 1993, Chapter 4.3)

Land use change is so far mostly known for its contributions to climate change: “The primary source of the increased atmospheric concentration of carbon dioxide since the pre-industrial period results from fossile fuel use, with land-use change providing another significant but smaller contribution” (IPCC, 2007a, p. 2). However, land use change by itself is a major cause for concern. “It seems highly probable that the environmental changes caused by land use change far exceed those generated by climate change over both short and very long time scales (...)” (Slaymaker, 2001, p. 71). The research field of land use change has worked for some time to focus on drivers or underlying forces. “Underlying (or root, or indirect) causes are fundamental

forces that underpin the more proximate circumstances. (...) Underlying forces are formed by a complex of social, political, economic, demographic, technological, cultural and biophysical variables that constitute structural (or systemic) conditions in human-environment relations.” (Geist & McConnell, 2006, p. 43) Recognising underlying causes will make policy on limiting land use change, including local policy, more successful (Lambin & Geist, 2006, pp. 159, 162). The issue of land use change may be the next environmental concern, following climate change.

The situation is no less alarming for the marine environment. The report “In Dead Water” by UNEP calls to see climate change in connection with other stressors in designing policies: “While there are projections of collapse in the World’s fisheries purely as a result of over-harvesting, it is far more likely that such a collapse may arise even earlier as a result of the rapid growth of multiple stressors, including climate change, acting in combination. Unless these interlinked and synergistic processes are seen and addressed together, the environmental and socio-economic impacts, particularly for impoverished coastal populations, may become severe. (...) There are currently no international or widespread implemented national policies in place to ensure that such disaster is prevented.” (United Nations Environment Programme, 2008, p. 58)

### **1.5.2 The role of energy in strengthening drivers**

The unsustainable pattern of production is closely linked to the amount of energy used<sup>4</sup>. The more energy used in production, the more output. The more output, the more goods to transport, and the more goods to consume – both of which require additional energy. The more goods consumed, the more waste need to be recycled – and this requires energy. This in turn suggests that the *amount* of energy used is a significant issue with regard to drivers, relatively independent of the source of the

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<sup>4</sup> A more common notion than ‘energy used’ is ‘energy consumed’. I do not use the latter to avoid confusion with the word ‘consumption’ which in this respect is reserved for consumption of goods.



energy being fossil fuels or not. The amount of energy used is an indication of the strength of the drivers, here exemplified by production and consumption. Energy per capita is a recognized indicator of welfare. “Progress has in all seriousness been measured by the rate of energy consumption and the acquisition and accumulation of material objects” (Næss, 2001a). But there is hardly any attention paid to the connection between the increase in the amount of energy and the *strengthening* of the drivers of climate change, and the energy used in production and in consumption, in the industrialised countries. The United Nations Millennium Declaration states: “The current unsustainable patterns of production and consumption must be changed in the interest of our future welfare and that of our descendants.”(U.N., 2000)

The use of energy is an underlying cause for a whole range of environmental burdens beyond climate change: resource exhaustion, land and water degradation, acidification, exposure to radioactivity, and adverse health effects (Lenzen et al., 2006).

This reasoning is also well expressed in the following citation, where new energy sources are not seen as the saviour of environmental problems: “Such a new energy source powering new technologies could well lead to the continuation, or even acceleration, of other environmental pressures such as the clearing of tropical rainforest, the over-exploitation of fisheries, the production of even more pesticides and other chemical pollutants, and the mixing of species and ecosystems through greater travel and transport.” (Steffen, 2007, p. 374) An approach that only focuses on a single environmental problem without relating it to drivers or interlinked environmental stressors – may actually contribute to the next serious man-made environmental degradation. The special role of energy and the field of thermodynamics played a main role in establishing the field of ecological economics (Georgescu-Roegen, 1971; Røpke, 2004), which I will return to in a later section.

The amount of energy used is a field hardly touched upon by today’s politicians. Instead, the much more user-friendly notion ‘energy-security’ figures high on the agenda. By ‘energy-security’ we understand that there is to be no scarcity or

limitations on the amount of energy provided for the citizens – aside from standard market price regulations.

This chapter concludes that climate change is not merely a greenhouse-gas issue. We must change the form or strength of the drivers to reduce the impact on the environment. If we focus on making marginal parts of nature sustainable, without reducing or changing the drivers, it will just lead to increased pressure on other parts of nature.

### **1.5.3 International policy tools on mitigating climate change**

The Kyoto protocol (United Nations, 1998) is designed to limit and reduce direct emissions of greenhouse gases. The possibility of buying quotas instead of reducing domestic emissions is a system to encourage the most economic effective reductions being made first. Calculations within the regime of Weak show the possibilities for huge emission reductions. The results are however severely constrained by too few signatories, and the Clean Development Mechanism which has shown serious leakages in the system (Babiker, 2005; Bruvoll & Fæhn, 2006). On top of this, although hardly a theme, countries that buy emission quotas instead of reducing domestic emissions strengthen the drivers for climate change.

The Kyoto protocol, when signed, was an important first step towards mitigating climate change. But even the narrow goal of reducing direct emissions of greenhouse gases is not ambitious enough. “The target seems to be entirely a negotiating construct based on the participants’ assessment of what is achievable politically.” (Rayner & Malone, 1998, p. 111) Concerning the content and environmental success of a new climate agreement it is reason to bear in mind 1) the tendency of negotiations to lower the environmental outcome to what is politically achievable, and 2) that a narrow focus on limiting the emissions of greenhouse gases might strengthen drivers of other environmental problems. According to Anderson and Bows, a rise in temperature

above 4 degrees is now the most likely outcome from negotiating a new global agreement (Anderson & Bows, 2008). The resulting environmental degradation and tragedies for human life will be enormous.

These points are not arguments for not contributing to an environmentally successful new climate agreement. But they are arguments for not relying entirely on international negotiations to solve global environmental problems. They are arguments for acting unilaterally (Nilsen, 2008), and to encourage industrialized countries to change drivers to climate change - either as part of an international agreement or not. The first 2 papers in this thesis have the national unilateral initiative as a point of departure for policy on mitigating climate change, whereas the 3<sup>rd</sup> paper develops a theoretical model for an economic policy approach, inspired by the conclusions of the first 2 papers.

## **1.6 My professional background**

Choice of research question and methodology are influenced by factors like background and ontology. To be a human being is to be a purposive agent, having reasons for his or her activities and also able, if asked, to elaborate discursively upon those reasons (Giddens, 2004, p. 3). It is thus my view that this thesis is influenced by my background, and I will therefore give a presentation of my professional history.

Before starting on this PhD I held a Norwegian cand.polit., which is somewhat higher than a Masters degree. Cand.polit. is an abbreviation for 'candidatus rerum politicarum' meaning a candidate in social sciences (Norwegian: "kandidat i samfunnsvitenskap"). I graduated with a Bachelors' degree from The University of Tromsø, whereas the Masters or Norwegian 'hovedfag' is from The University of Bergen at the Department of Economics. The economic perspective throughout my studies was firmly confined to the school of neoclassical economics. One exception was the voluntary 'History of Economic Thought' which also entailed some

philosophy of science. Some of the topics of this course were known to me from the course “examen philosophicum” from my first year at the university. These two courses stood out as especially important to me in my cand.polit. study programme.

After graduating in 1995 I worked for 8 years before starting working on this PhD. I worked in the following organisations, listed chronologically starting from 1995; the Norwegian State Housing Bank, The Food and Agriculture Organisation of the United Nations (FAO), United Nations Industrial Development Organisation (UNIDO) and Harstad University College. At the beginning of this 8 year period I often used the tools of neoclassical economics. After a while, I realized that these tools did not give me answers to the questions I was working on. This was especially apparent within the UN. The goals of the organisation and the needs to fulfil these goals struck me as extremely important. I believed a PhD would give me insight into 1) a better understanding of the complexity of issues, and 2) contribute to meaningful development. The issue or case of this thesis is mitigating climate change through certain areas of Norwegian economic petroleum policy. 1) is an expression of a way of thinking to the point described in the following citation. “Rather than a fruitless seeking for the universal foundation of truth, research is about understanding the impact of logics, positions, relations and strategies in the scientific field.” (Bourdieu, 2007, p. 11, foreword by T.Slaatta, my translation)

It was not until applying for a research fellow position that I discovered the so-called green theories, exemplified in this thesis by Strong. The attraction was the use of words like ontology, holism, fairness, ethics and values. In this thesis I argue that the new green theories including Strong provide better designed tools for contributing to meaningful development – stated as 2) above. But as important for this thesis as green theories and Strong, was the re-entering into philosophy of science. Philosophy of science, including discussions and choice of methodology offers a theoretical foundation for the case-based and reflexive approach of this thesis. Contrasting Weak and Strong gives me a better understanding of the complexity of the issues at hand – stated as 1) above.

## **1.7 Structure of the thesis**

Chapter 2 describes the methodology of the thesis. Methodology is a strong premise for the analyses as well as for the empirical part, and is hence presented this early. Chapter 3 and 4 present the two base theories, Weak and Strong, using a reflective approach. Chapter 5 discusses the ethical foundations of Weak and Strong respectively, whereas Chapter 6 handles the theme of discourse ethics – a premise for the introduction of the concept reflexive sustainable development. The following Chapters 7 – 9 present the three papers, whereas Chapter 10 offers conclusions and implications.

## **2. Methodology**

### **2.1 Reflective research**

This chapter builds to a large extent on the contributions of Alvesson and Sköldberg (2005; Alvesson & Sköldberg, 2008). They define reflective research as starting with a sceptical approach about what appears to be reality, and aim to provide knowledge enabling opportunities for understanding. Reflective research consists of two basic features: 1) interpretation and 2) reflection.

1) All empirical data is the result of interpretations. There is no simple mirroring of reality and the results of research. Interviews, observations, measurements and secondary data are all interpretations. Interpretation means there are no simple, clear-cut rules and procedures to follow. Nothing is self-evident but demands the researcher's judgement, intuition, and the ability to see and pinpoint important factors (Maranhão, 1991). In a later chapter I look at how the validity in my this thesis is secured, first and foremost through the reflexive use of both Weak and Strong.

2) Reflection is an inward critical focus of one's own interpretations of empirical material. Interpretation of empirical material is the traditional approach within defined schools of thought. Reflection means looking at ourselves, our preconditions for interpretation - an interpretation of the interpretation. These statements capture the scope of reflective research well:

“Reflection means thinking about the conditions for what one is doing, investigating the way in which the theoretical, cultural and political context of individual and intellectual involvement affects interaction with whatever is being researched, often in ways difficult to become conscious of.” (Alvesson & Sköldberg, 2005, p. 245).

“Thus in reflective empirical research the centre of gravity is shifted from the handling of empirical material towards, as far as possible, a consideration of the perceptual,

cognitive, theoretical, linguistic, (inter)textual, political and cultural circumstances that form the backdrop to – as well as impregnate – the interpretations.” (Alvesson & Sköldberg, 2005, p. 6). Reflective research is an expression of, and is limited by, the researcher’s knowledge and skills.

Reflective research in this thesis concentrates on

- 1) history of theories, including conceptual analysis
- 2) the political context of the research area
- 3) a sceptical or critical approach to how reality is presented
- 4) knowledge that enables understanding

These four points are brought into the thesis as described below.

1) Separate chapters on the historical background of Weak and Strong. Conceptual analysis is a central element in papers 2 and 3. This does not feature so strongly in paper 1, as this paper is predominantly confined to one school of thought.

2) The research area of this thesis is to analyse critically specific areas of Norwegian economic policy on climate change using Weak and Strong. This is most visible in

- Separate chapters on policy advice from the two school of thoughts.
- Political statements on Norwegian economic policy on climate change
- Paper 2 where a main conclusion is that there *is* no political argument or statement on a major issue - but that there should be.

3) The sceptical or critical approach is visible in questioning single perspective presentations of reality. This goes for the single perspective or paradigmatic approaches of Weak versus Strong, also visible in official policy documents. The critical approach has a more open attitude as to how we can understand reality, but it also requires a more thorough analysis and argumentation for a chosen theoretical perspective.

- Paper 1 questions the political and technical appraisal of carbon capture and storage as an unquestionably positive step in mitigating climate change. In a research program financed by the Research Council of Norway it is claimed that there are several challenges to be solved before geological storage becomes an accepted method. Most of the challenges listed are technical, but the last challenge is: “Achieve the inhabitants’ trust that the methods for storage are safe and do not pose an environmental threat.”(The Research Council of Norway & Gassnova, 2008, pp. 17-18) The technical challenges should be ‘solved’ first, before working to achieve the inhabitants trust. Whether technology can ‘solve’ environmental stress is already questioned in the light of drivers and interlinked stressors. This point is also further explored in the chapter on precautionary principles.
- Paper 2 questions a politically established investment system, and criticises the idea of overlapping consensus as being at odds with the political goal of mitigating climate change.
- Paper 3 looks critically at the tendency to describe both Weak and Strong, separately, in official documents. There is a need to highlight differences between Weak and Strong, to describe why they can not both be achieved separately. But there is also a need to establish a common platform for moving the theoretical and practical debates, and the according policy on climate change in a direction from Weak towards Strong.

4) Providing knowledge or developing theory that enables better understanding is presented in Chapter 1.1 - as the second main research area of this thesis. This is made visible in all three papers. Paper 1 uses Strong, an alternative approach to the official policy of Weak, in order to make transparent national structures and policy on mitigating climate change. Paper 2 and 3 argues for discussing Weak and Strong in relation to each other. This requires understanding. A model is developed, called



reflexive sustainable development, by recognizing a theoretical common platform and mutually exclusive standpoints.

I understand reflective research as a term very similar to critical hermeneutics, or critical theory, but without the historical backdrop to the Frankfurter school. The term reflective research is a more ideologically independent term than critical research. Reflective research gives an impression of being more of a tool, and being used as a tool, than the ideologically coloured critical theory. In the rest of this thesis I use the (more optimistic sounding) term reflection, instead of critical theory. But the first is derived from the latter which has a long and important history. Also Anthony Giddens, professor of sociology and former director of London School of Economics, stresses the importance of critique in relation to social research as his structuration theory. This kind of research is intrinsically incomplete unless linked to a conception of social science as critical theory (Giddens, 2004, p. 287). The following section gives a short presentation of critical theory, designed to provide a deeper understanding of my reflective research.

### **2.1.1 Critical theory**

Critical theory is also called critical hermeneutics<sup>5</sup>, as interpretation is its characteristically common denominator. The term “critical” refers to critically disputing actual social realities. Critical theory developed from the end of the 1920’s at an independent research institute, Institut für Sozialforschung – also known as the

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<sup>5</sup> A presentation of hermeneutics as such is not given, beyond this brief background information. Critical hermeneutics builds on alethic hermeneutics, ‘alethic’ derived from the Greek word ‘aletheia’ meaning to uncover. In hermeneutics, understanding is nothing exceptional, but a basic way of existing for all human beings. It is this basic understanding that researchers explore, and the outcomes of this research are at best secondary derivatives ((Heidegger, 1962) in (Alvesson & Sköldberg, 2005)). This approach to hermeneutics also goes for Giddens’ double hermeneutics presented in a later section. Several authors have linked Heidegger’s view with Kuhn’s paradigm, where the paradigm is then regarded as a hermeneutic ‘form of life’ where researchers are members of specific, historically and cultural schools. In paper 3, I argue when and why Kuhn’s paradigm is not a constructive description or tool. The theoretical basis of this thesis, Weak and Strong, is instead presented and analysed as two separate discourses.

Frankfurt School - affiliated to the University of Frankfurt. The development of critical theory was strongly influenced by the current political climate in Germany and in the Soviet Union. The Frankfurt School developed theories inspired by philosophy, and which had practical political significance. "They defined their task as to clarify the relationship between apparently given, empirical social conditions and the historical and social context from which they developed and within which they are re-created and – with time – changed. (...) Statements about society cannot be impartial. Rather, they tend to confirm or challenge existing social institutions and establish modes of thought." (Alvesson & Sköldbberg, 2005, p. 112). The Frankfurt School advocated that social science should develop an independent and critical stance and provide opposition towards these institutions, authorities and modes of thought. As Hitler came into power in 1933, the original members of the Frankfurt School emigrated to the United States. Confronted with the one dimensional commercial culture of the US, they developed an interpretation of modern capitalism as a challenge to freedom and enlightenment. They claimed that pushing instrumental and rational technological thinking produces its own opposite – irrationality. Hence, what they call the irrationalities of modern capitalist society should figure among the major subjects of research.

The well-known German philosopher and sociologist Jürgen Habermas is second generation from the Frankfurt School. He also claims that we follow authorities too easily – authorities that may exist at the expense of suppressed people, classes or societies. Such injustice may often be explained as necessary patterns of a society, formed by natural economical and social processes that can not be changed. The suppressed may be unaware that they are suppressed. An ideal situation which is free of suppression must be created. Only in this situation can the best argument come forward and be accepted. This is a foundation of the theory of communicative action (Habermas, 1990), and is by Alvesson and Sköldbberg (2005) characterized as the more optimistic variant of critical theory.

The theory of communicative action and discourse ethics is explored in papers 2 and 3. The theoretical approach of paper number 1 is "Circulation economics" (Ingebrigtsen

& Jakobsen, 2007), where the theory of communicative action is one of the corner stones.

The economic policy-orientation of this thesis is motivated by, and argues for the need to change policy away from the dominance of Weak towards Strong. Weak is by and large built on the same assumptions as the market economy which characterizes the modern capitalist society. A development towards Strong must challenge the one-dimensional value of Weak. “Concerted engagement in change-producing activity requires conscious reflection on the part of the actors involved, which is why I choose to call this form of knowledge reflective, in the spirit of critical theory” ((Geuss, 1981) in (Park, 2001, p. 86)).

### **2.1.2 The empirical approach**

Influential critical theorists such as Jürgen Habermas and Anthony Giddens have been criticized for their lack of interest in empirical studies (Alvesson & Deetz, 2000, p. 2). Neither critical theory nor reflective research offers an easy or constructive way of carrying out empirical research. Historical and social context are the key issues of critical theory, and these therefore inspire considerations of broader context. “The social sciences are lost if they are not directly related to philosophical problems by those who practise them” (Giddens, 2004, p. xvii). Things that can be relatively easily extracted from interviews, or otherwise easily observed, are generally not what critical theory sees as an essential subject of research. “Both totality and subjectivity – at least the deeper blockages in our consciousness which most urgently call for study – escape simple empirical methods” (Alvesson & Sköldberg, 2005, p. 131). My research project is an analysis of the relationship between man-made climate change and certain aspects of Norwegian economic policy related to petroleum. A difference between Weak and Strong can be an expression of the researchers’ different ontology. Or even more characteristically, as argued in a later chapter, there is an actual neglect of ontological questions in economic debates on mitigating climate change. Obtaining

data for my thesis would probably confirm this situation. To avoid uncritical reproduction of dominant ideas, critical theory advises using existing empirical studies and examples, (re)interpreting them, and complementing them by observations and interpretations of the social context and basic assumptions. In my case, this means using already existing texts relevant to the research area of sustainable development, climate change and the Norwegian policy on climate change and petroleum. Specific sources used are publications from the UN, IPCC, Norwegian White papers, and other official documents such as Norwegian official publications (NOU's), publications from non-governmental organisations, official letters, press-releases, information given on TV, newspapers and websites. In addition primary data has been obtained through a few interviews, e-mails and letters.

A not so appealing characteristic of critical theory is that it may be perceived provocative in its lack of respect for established institutions and their practices. "The ideal that the researcher poses the problem, in such a way that it goes against dominant patterns, may seem elitist and lacking in respect for society's institutions, including the political bodies. Should not researchers take seriously those things that politicians, business managers, trade unions and so on all deem to be important? Yes, but such issues should be subjected to critical scrutiny as much as taken for granted as guiding principles" (Alvesson & Sköldbberg, 2005, p. 133). Hence the critical researcher must test the structures and processes which generate certain opinions. For instance, are the common opinions the result of a communicative debate? Or are they expressions of systematically distorted communication? Paper number 2 is an example of a basis - overlapping consensus - which takes a serious issue like the ethical dimension of climate change off the public agenda and thereby avoids critical debate. The empirical approach of reflective research includes having a view of society in which social phenomena must be viewed in their historical context. Even more importantly; existing patterns in society must be contrasted with the opposite and the negation to show the possibility of a different pattern or society. In this thesis Weak and Strong are contrasted to show options. More specifically, Weak is considered to represent the

dominant existing policy pattern, is contrasted, and discussed in relation to the alternative of Strong.

“Method is thus, not primarily a matter of ‘data management’ or the mechanics and logistics of data production/processing, but is a reflexive activity where empirical material calls for careful interpretation – a process in which the theoretical, political and ethical issues are central.” (Alvesson & Deetz, 2000) My research in this sense is strongly influenced by the interplay of theories, policy and ethics.

## **2.2 Reflexive research**

Reflexivity is to be able to see what a theory can *not* say. Research and methodologies that strongly emphasize one particular position are reflective but not reflexive. Solid theoretical consistency is therefore not an ideal, and neither is expanding a theory to capture ever occurring elements. A reflexive methodology means ensuring breadth and variation in interpretation.

Alvesson and Sköldbberg (2005) define reflexivity as a specified version of reflection, a reflection across various levels of interpretation. The double hermeneutics of Giddens is a reflexive tool, which in this thesis is used to indicate how Weak keeps a hold on the hegemony in science and policy recommendations. But primarily, the reflexivity is expressed through the ‘horizontal’ discussion of Weak versus Strong. Discourse analysis is used to mediate and contrast Weak and Strong, a reflexive horizontal methodology. Using two reflexive methodologies may seem very ambitious, however, “The main point lies in the principle of reflection and interpretation rather than a definite number of levels; a movement instead of a static, four tier structure” (Alvesson & Sköldbberg, 2005, p. 248).

The double hermeneutics and discourse analysis is presented in later chapters. First follows an analysis of methodological individualism versus methodological holism,

and a discussion concerning different ontologies. These themes are all closely interlinked under the umbrella of reflexive methodology.

### **2.3 Methodological individualism versus methodological holism**

The debate on methodological individualism (MI) versus methodological holism (MH) is a discussion about *how* social sciences can explain social phenomena. It is a debate within the sphere of philosophy of science, and is an important premise for this thesis.

MI says the direction of an explanation always goes from the individual to the society. There are various degrees of MI. A radical individualist will say that an action can be explained without referring to structure, and that a social phenomenon is always the sum of the actions of individuals. (Gilje & Grimen, 1993, chapter 8) A more liberal and common position is that there is a structured whole, fixed by the properties and *relations* of the individuals. “Individualists concede that social facts cannot be understood by taking individuals in isolation from each other” (Sober, 1980, p. 94).

MI can explain social phenomenon in different ways; as contracts between individuals, power relations between individuals, aggregates of individual actions, or unintended consequences of individuals (Gilje & Grimen, 1993). Man-made climate change is often explained as the sum of unintended consequences of individuals’ actions. This is also the traditional way of describing environmental problems in neoclassical economics - as external effects. The effects arise outside the economic model.

Neoclassical economics belongs to MI (Elster, 1989). Adam Smith, the founder of classical economics, is often referred to as a radical individualist (Gunteriusen, 1999, p. 49). Smith’s famous ‘invisible hand’ may possibly be interpreted as MH, but it is people’s personal disposition that unintentionally promotes the interest of the public

(Watkins, 1952, p. 188). MI was developed even further in the marginalistic advance of neoclassical economics<sup>6</sup>. Weak builds on the same approach - MI.

Still, there is a pragmatic attitude with regard to MI among economists. The influential economist Blaug expresses it in the following way: “Let us, by all means, commend methodological individualism as a heuristic postulate: in principle, it is highly desirable to define all holistic concepts, macroscopic factors, aggregate variables, or whatever they are called, in terms of individual behaviour if and when this is possible. But when it is not possible, let us not lapse into silence on the grounds that we may not defy the principle of methodological individualism.”(Blaug, 1997, p. 46) Moreover, Blaug exemplifies the research area of macroeconomics as an area which is problematic with a MI. “In effect, it would rule out all macroeconomics propositions that cannot be reduced to microeconomic ones, and since few have yet been so reduced, this amounts in turn to saying goodbye to almost the whole of received macroeconomics. There must be something wrong with a methodological principle that has such devastating implications.” (Blaug, 1997, p. 46) Another well known economist, Arrow, says individual behaviour is always mediated by social relations. “I do conclude that social variables, attached to particular individuals, are essential in studying the economy” (Arrow, 1994, p. 5). I conclude, also due to my own experiences in neoclassical economics, that the methodology is predominantly MI but this is not an absolute standpoint regardless of the case at hand.

MH says that the direction in an explanation always goes from social phenomenon to individuals<sup>7</sup> (Gilje & Grimen, 1993, chapter 8). An individual’s action is to be explained from the surrounding social system. The social wholes can not be reduced to the beliefs, attitudes, and actions of the individuals that make them up (Blaug, 1997, p.

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<sup>6</sup> I elaborate more on this in the chapter “Weak in a reflective approach”.

<sup>7</sup> Methodological structuralism and collectivism are two other concepts resembling MH, also in contrast to MI. I do not move into the realm of methodological structuralism and collectivism besides stating that what defines the individual is the social structure and the collective (for instance nation or class) respectively.

44). The properties of the whole are not determined by the unary, non-relational, properties of the parts (Sober, 1980, pp. 93-94).

Different opinions exist among ecological economists as to whether MI or MH is to be the starting point. The research field of ecological economics is young and is still very much evolving - also in divergent directions<sup>8</sup> (Røpke, 2005). Still, an overall holistic view is imperative in keeping and constituting ecological economics as a school of thought different from neoclassical economics. In the very first edition of the journal *Ecological economics*, George Costanza, one of the central founders says: “We have chosen the name Ecological Economics for this area of study because it implies a broad, ecological, interdisciplinary, and holistic view of the problem of studying and managing our world.” (Costanza, 1989, p. 1) Staying *within* this school of thought, MH may be a natural position (Ingebrigtsen & Jakobsen, 2007, p. 48). However, I will argue that the holistic view can be taken care of through an explicit holistically expressed ontology. Within this explicitly expressed frame of holism, there is room for MI.

The flexible methodology of the thesis prescribes considering both MI and MH in relation to the specific question at hand. The case of this thesis, economic policy for mitigating climate change, suggests that MI can be useful - provided that it is guided by an explicit OH. In other cases the more appropriate approach might be MH, which leads to OH. Summing up, MH can only be guided by OH, not ontological individualism, whereas MI can be influenced by OH or ontological individualism.

John Watkins, Professor of Philosophy at The London School of Economics and a dedicated MI'er, used a beehive as an example of a non-human social system where MH is appropriate (Watkins, 1952, pp. 187-188). He made a distinction between physical causes operating in society, which might be explained by MH, and people operating through MI (Watkins, 1955, p. 58). Donella Meadows, a well-recognised contributor to ecological economics puts it like this in the book *Thinking in systems:*

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<sup>8</sup> I return to this topic in the chapter “Strong in a reflective approach”.



*A Primer*: “I don’t think the system’s way of seeing is better than the reductionist way of thinking. I think it’s complementary, and therefore revealing.” (Meadows, 2008, p. 6) Yet another well recognized contributor to Strong is Dr. Simon Zadek. I have already cited this phrase in an earlier chapter in this thesis - a citation taken from an article on sustainability in auditing. “We are only now beginning to understand some of the dynamic feedback loops between the different spheres that need to be taken into account, and our ability to model these relationships should improve over time. Any methodology should be flexible enough to cope with this learning process.” (Zadek, 1999, p. 9) To sum up this debate on MI and MH, no question within the social sciences should be decided by a priori arguments on MI or MH (Sober, 1980, p. 116). Moreover, whether MI or MH is the starting point is not the crucial point in this thesis on mitigating climate change. More important is the difference between methodology and ontological holism.

## **2.4 Ontology**

Ontology is the theory about what exists. It is an inquiry into the nature of being (Lawson, 1994, p. 257). Some distinguish between formal ontology, which is interested in every possible being in the world, and ontology focusing on the being of humans (Lindberg, 2001, p. 6). There is a difference in the ontology, characterizing Strong and Weak. Strong has a broad perspective where, in principle, all aspects of nature are relevant in relation to humans. Weak is not explicitly interested in ontology, but has an anthropocentric focus where nature is only of interest in relation to human utility. Nyeng (2004, p. 134) summarizes ontology to be what we mean science is about. This provides too narrow a definition for my thesis. Another commonly used term for ontology is world view.

## 2.5 Ontology in relation to Strong

Ecological economics and Strong are built on the recognition of ontological holism (OH). Nature is a holistic system; making marginal bits sustainable is no guarantee for sustaining bigger ecosystems. Ecosystems are self-organizing systems that unfold in many scales from microhabitat to eco-region (Norton, 2005, p. 9). This is the first reason for the holistic approach of this thesis. It is important to spell out that the meaning of holistic ontology in this thesis is first and foremost linked to nature. The second argument for the holistic ontology of this thesis is, as I argued in Chapter 1, that climate change is closely linked to social drivers - this is a complex system. The theoretical approach of critical theory and reflective research – presented in earlier chapters – stress the importance of not treating problems as separate phenomena, without relating them to the combination of totality (Alvesson & Sköldbberg, 2008, p. 314).

During the early days of the period of ecological economics, an influential book was written by H.T. Odum, *Environment, Power, and Society*. Odum focuses on the dynamics of ecological systems and applies this to the energetic process connected to social issues: “Men, already having a clear view of the parts in their fantastically complex detail, must somehow get away, rise above, step back, group parts, simplify concepts, interpose frosted glass, and thus somehow see the big patterns.” (Odum, 1971, p. 10) Odum speaks of building from parts into larger wholes and patterns, to see the world through a macroscope – as opposed to the traditional microscope. I interpret this as proceeding from MI, building from parts, but at the same time having or arriving at a holistic view. It can be expressed like this: MI → OH.

The holistic ontology which ecological economics builds on is mostly stated explicitly. And the explicit ontology is especially important for the group of ecological economists who found their work on a critique of the ontology presumably built on by neoclassical economics.

## 2.6 Ontology in relation to Weak

Neoclassical economics and Weak build on a different ontology than Strong. The goal of neoclassical economics is to maximize human utility<sup>9</sup>. This is the standard form on which by far the most theoretical and formal analysis is built. In this respect the ontology of Weak and Strong stand out as being very different. However, there are at least two aspects - discussed in the following chapters - which make the ontology of Weak unclear.

### 2.6.1 A Transitional Phase

Several leading economists have in the past portrayed the maximizing of utility as a transitional phase. One of the founders of utilitarianism, John Stuart Mill (1748-1832), described it as a degraded value with disagreeable symptoms such as trampling, crushing, elbowing, and treading on one another's heels. But still necessary to increase production, and moreover, if production is not increased, the alternative may be continuous wars. Once a 'steady-state' production volume is reached, the world will change into a place where no one desires to be richer, thus opening the way for greater leisure and personal development. (Mill, reprint 1987, pp. 746-751) in (Nelson, 2006, pp. 33-34)

Keynes also describes utilitarianism as distasteful and unjust, but tremendously useful in promoting the accumulation of capital. Once the state of abundance is reached, this will end the corrosive and corrupting influence of economic scarcity. And we will finally be freed from the pseudo-moral principle (Keynes, reprint 1963, pp. 371-372) in (Nelson, 2006, p. 31) In the US, the influential book *Economics* by economist Paul Samuelson (Paul A. Samuelson, 1948) communicated Keynes' theory including the moral philosophy, with great accomplishment. Following the plan proposed by

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<sup>9</sup> Utilitarianism is presented in the later chapter on ethics. Readers not familiar with utilitarianism might consider reading the later chapter before this one.

economics would lead to perfection of the human condition – the arrival of heaven on earth.

For how long is this transitional phase to last? There is little doubt that for most inhabitants of industrialised countries the state of abundance has arrived. It has also become clear that this is not heaven on earth after all, at least not if measured in happiness (Sagoff, 1997). Nevertheless, neoclassical economics has succeeded in raising production and consumption in the industrialised countries above the satisfying of basic needs. As long as there is belief that this system will reduce poverty in today's developing countries, neoclassical economics will have its adherents (although there are many voices claiming neoclassical economics cannot do this job). And the transitional phase of utilitarianism will not cease until the last country has reached a state of abundance. However, while waiting for abundance to find its way to even more countries, the environmental situation is deteriorating, making the situation for poor countries in the south even worse. There is no reason to let Weak work its way through this undefined transitional phase, at least not undisputed. Moreover, if economics is a means, a transition, in order to reach a higher goal – then it is instrumental.

### **2.6.2 Instrumentalism and descriptivism**

In the 1950's a debate regarding the importance of realism of assumptions started. The main contributors were the distinguished economists Friedman and Samuelson. Friedman, a well-known proponent of instrumentalism, stated that realism of assumptions is largely irrelevant for assessing the validity of a theory. "The ultimate goal of a positive science is the development of a "theory" of "hypothesis" that yields valid and meaningful (i.e., not truistic) predictions about phenomena not yet observed" (Friedman, 1953, p. 7). Samuelson argued against this view and for a methodology of descriptivism (Blaug, 1997; P. A. Samuelson, 1963, , 1966). Several analyses of this debate have concluded that it all was rather confusing. Both these famous economists

are charged as saying the same thing in different words, as well as failing to practice what they preach (Blaug, 1997, p. 99; Wong, 1973).

But instrumentalism and the goal of prediction are still practiced today, as described in this following citation by Brekke (2008, p. 38): “It is meaningless to have an ambition to describe the world exactly as it is. As we know a butterfly can flap its wings in China and start a storm in Europe, and the storm can be economical destructive. And details in individuals’ behaviour are as difficult to predict as the weather. If we did find an accurate model, there would never be accurate enough data. We can reduce the level of precision so much so that we are never mistaken, (“There will happen lots of strange things in 2010!”), but if we are to say something interesting we must dare to be daring, and at the same time have realistic goals. This should be well-known for any economist: we like to make assumptions that we know are not entirely correct.” (my translation) Being daring probably means making predictions about 2010 which can be falsified. But if the predictions are falsified, it has no crucial consequences for the theory, as this is not guided by empirical observations anyhow. In this respect it is not that daring to predict. Within strict instrumentalism a theory is neither true nor false, but merely adequate or inadequate for a given real-world problem. Acceptance of instrumentalism rules out the possibility of falsification in science ((Popper, 1965, pp. 113-114) cited in (van den Bergh, Ferrer-i-Carbonell, & Munda, 2000)). Blaug characterizes instrumentalism as an excessively modest methodology, but so also is descriptivism (Blaug, 1997, p. 99). Descriptivism overlooks that many empirical statements are theory-laden.

The discussion concerning instrumentalism versus descriptivism is not a discussion involving explicit ontology. Ontological questions enable a range of other debates related to economics. Examples relevant to this thesis are:

- The possibility of interdisciplinary cooperation beyond an established methodology
- Anthropocentrism versus non-anthropocentrism, for instance in relation to the precautionary principle discussed in later sections

- The strong tradition of positivism within economics
- Social constructivism and discourse analysis, inspired for instance by texts of Foucault (Foucault, 1972)

Neoclassical economics as practiced today involves no practice for making eventual ontological assumptions explicit. In general, there is a characteristic neglect of philosophical and ontological questions in practising neoclassical economics that is striking (Dow, 1990; Herrmann- Pillath, 2001). This is also my professional experience; ontology was not a theme in either of the mandatory courses in my studies of neoclassical economics. The neoclassical economic way of thinking is taken for granted, first and foremost by its proponents. But this way of thinking has to a large extent also been taken for granted by policy-makers and laymen. This can be explained through the double hermeneutics (Giddens, 2004), which I will return to in a later section. But this situation is about to change, as faith in the redeeming power of material progress is fading (Nelson, 2006, p. 333). A way for proponents of Weak to keep their hegemonic power is not to put ontology on the agenda.

If ontology is not discussed, students and professionals may present neoclassical economics as value-free. The most powerful value statements in *Economics* - as in most other books in the field of neoclassical economics - are mostly left implicit. Instead, the language is kept in the authoritative voice of physics and the methods promise to free science from metaphysics, morals and personal conviction (Nelson, 2006).

When Weak is presented as value free, it leaves the values left to be discussed. In other words, the theme 'value' is an open or blank field which can be filled in. There is an opportunity to fill in this blank field through establishing an ontological discussion. This might constrain Weak, as well as other theories, in the particular case at hand.

Ontological discussions must be a continuous process, as stressed by Lawson (Lawson, 1994, p. 259). The reaction by proponents of Weak will either be acceptance,

denial or no reaction at all. The latter probably presents the biggest challenge: to generate an explicit reaction or answer, to get a discussion or discourse going *at all* regarding these matters. However, two emerging trends will act to spur such discourses: interdisciplinary research and participative process in policy-making (van den Hove, 2006). This will force proponents of Weak to make their underlying assumptions more explicit. Proponents of Weak will have to argue for the appropriateness of their methodology, while being confronted with ontological questions.

The lack of ontological debates within neoclassical economics today gives way to *preserving* neoclassical economics, be it instrumental or descriptive. However, proponents of descriptivism are probably more likely to see the relevance of and to engage in ontological debates, than proponents of instrumentalism.

## **2.7 Summing up Ontology of Weak and Strong**

Nelson says the difference between neoclassical economics and what he calls 'environmentalists' is of a religious character. "Economic religion is all the more irritating to many environmentalists today because it usually refuses to acknowledge its actual religious content. Attempts to promote dialogue have often failed, in part because many of the differences between environmentalists and economists were religious in character and yet neither party wanted to – or perhaps knew how to – talk about these theological differences." (Nelson, 2006, p. 313) Nevertheless, Nelson believes in a new area in which such dialogue can take place. "I disagree with most of my fellow economists, however, in that I think it is possible to have a theological conversation with respect to environmental policy matters. Theology was in the past and can again in the future be an area for useful discussions of leading economic, environmental, and other public issues." What Nelson calls a theological conversation, is in the language of this thesis translated to be substantial debates between opposing schools of thought. I have already stressed the development towards interdisciplinary

research and participative process in policy-making. Paper 3 is an attempt to contribute to this development, and argue for compromises or changing practice with regard to ontological questions:

1. Proponents of Strong must utilise and create the opportunities to *discuss* ontology. Otherwise they will contribute to preserving Weak and its position within science and policy-making.
2. Proponents of Weak must argue for their possible ontological assumptions in each question at hand. It will then be up to the policy-makers, the bureaucrats and the laymen to decide if these arguments are better than the ones proposed by Strong.

In a recent book on global warming policies the well-known neoclassical economist Nordhaus (2008) says that a sensible decision-maker should listen to other people than economists before deciding on policy. A review of this book points out that this is an unusual point of view, coming from an economist (Alfsen, 2008). This thesis, and in particular paper 3, is designed to encourage more statements of this kind.

## **2.8 Ontology of Weak in papers 1, 2 and 3**

Strong has an immanent ontology of holism, originating in ecology and the knowledge of nature consisting of interrelated ecosystems. Ecological economics and Strong hold that the economy must recognize and internalize the limits and processes of nature. A further presentation of the origin of Strong and ecological economics is presented in Section 4. A conclusion from the previous sub-chapter is that neoclassical economics and Weak are often presented as value-free, without an ontological position. This leaves room to characterize and define the seemingly open field surrounding Weak; a deliberate ontology. This is often done by proponents of Strong. The common ontology to be assigned *by* proponents of Strong *to* neoclassical economics is atomism (Daly & Farley, 2004; Ingebrigtsen & Jakobsen, 2007, pp. 5, 7). So also in my paper 1:



in line with the theoretical foundation of circulation economics a world view of atomism is added to Weak (Nilsen, 2008, p. 115). By doing so, the division between Weak and Strong becomes deeper and the two positions stand out as two separate and distinct alternatives, as illustrated in Figure 2.1 below.

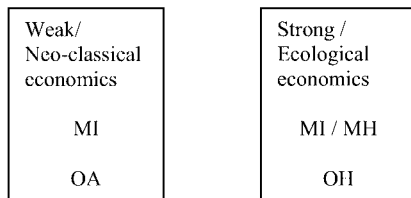


Figure 2.1: Ontological atomism (OA) of Weak versus ontological holism (OH) of Strong. Paper 1 ascribes OA to Weak. The division between Weak and Strong is clear and unambiguous.

The policy advice of paper 1 is clear and unambiguous within Strong and circulation economics. This is a standard quality criterion within most schools of thoughts. Paper 2 is an analysis of an economic policy area in Norway; the Ethical Guidelines of the Norwegian State’s Pension Fund (the Guidelines). It is a rare example of an area where the different values of Weak and Strong are ranked so clearly. “Often the struggle with concrete problems and policy dilemmas forces decisions, and the discipline of concrete decisions helps us implicitly rank ends whose ordering would have been too obscure in the abstract” (Daly & Farley, 2004, p. 42)<sup>10</sup>. There are two defined ethical theories related to the Guidelines: utilitarianism and deontology, which are the ethics of Weak and Strong respectively. One of the conclusions of paper 2 says the discussions are uneven, in favour of the hegemony of Weak and utilitarianism. Utilitarianism is the unofficial ethical theory of public policy for the whole western community as for much global policy as well (DesJardins, 2006, p. 32). Moreover, the basis of overlapping consensus (Rawls & Kelly, 2001) constrains any substantial

<sup>10</sup> Norton also stresses this inability to place priorities on value judgments in his stories from the American Environmental Protection Institute (EPA). He claims EPA therefore was left to political deal cutting, and formed a buffer against unpopular political decisions (Norton, 2005, p.13-14).

discussions that might have altered the hegemony of Weak. To alter the existing hegemony of Weak is a major challenge. This also has to do with forces such as challenging the *stability* which Weak represents.<sup>11</sup>

One approach to changing the situation detected in paper 2 is to work within the field of Strong, contributing to make this school of thought capable of challenging the hegemony of Weak. Paper 1 follows this tradition. Here Weak is considered as something completely different than Strong, also through using different world views. It is considered a waste of time and senseless to discuss the two in relation to each other. “Neoclassical economists reduce value to the level of individual tastes or preferences, about which it is senseless to argue” (Daly & Farley, 2004, p. 42). In other words, the hegemony of Weak is not challenged through substantial discussions taking place among proponents from competing school of thoughts. Therefore, if Weak is to be challenged, it must be through other factors like strength of the schools of thought, scientific and public reputation, lobbying skills of each school of thought, professional background and knowledge of bureaucrats and politicians, etc. This means facing stiff competition, with Strong as the undisputed underdog. It is also a time consuming way to move forward. Building confined schools of thoughts based on Strong is probably a necessary scientific activity, but it can and should be supplemented with a more immediate scientific approach as suggests in papers 2 and 3.

The present existence of the Ethical Guidelines calls for an immediate scientific involvement by proponents of Strong, and a conclusion of paper 2 is that this should be done through substantial discussions involving values. This means first considering the case in hand, in this case a disputed investment of the Norwegian Government Pension Fund - Global. Secondly, on the basis of these substantial discussions,

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<sup>11</sup> The famous sociologist Pierre Bourdieu (1930-2002) described *stability* as something that is sought sustained in all levels of society (Bourdieu, 2007). The relations between competing fields are only potentially visible. The relations are accepted as part of the society, and are confirmed indirectly through appreciation of certain persons, positions and institutions. I do not study this field further here, but would like merely to state that stability is a major force in society, in this thesis represented by Weak, and that Strong is barely visible in research and practical policy.

utilitarianism or deontology is decided upon. Not by the strength of each school of thought, but by the strength of the arguments<sup>12</sup>. Then the choice of policy can be related to the arguments of Weak and Strong in relation to mitigating climate change, not as a result of hegemonic power.

When proponents of Weak and Strong are now advised to enter substantial discussions, it seems reasonable to look for common ground - as well as possible mutually exclusive features. This is the essence of paper 3. The argument against entering into substantial discussions has been that it is senseless to argue against a different world view. The discussion above concluded that Weak is presented and practiced first and foremost methodologically. And that it is the proponents of Strong who assign a world view of atomism to Weak. Let us now look at the word atomism, critically.

## **2.9 Atomism versus individualism**

As stated above, by and large all methodological individualists concede that social facts cannot be understood by seeing individuals in isolation from one another. In general, from the standpoint of a dedicated MI'er, atomism is not a synonym for individualism. "Individualists will deny being atomists" (Sober, 1980, p. 94). Although neoclassical economics and Weak are first and foremost methodological, I believe there are some proponents with an individualistic world view. But I believe there are very few with a world view of atomism. Homo oeconomicus of neoclassical economics fits the perception of atomistic behaviour. But this is a model of a human being which neoclassical economists see as a psychopath (Brekke, 2008), as I elaborate on further in the later chapter on neoclassical economics. Friedman comments upon atomism in his classical "Essays in Positive Economics", by referring to Alfred Marshall (Marshall, 1929): "The reader will search long and hard – and I predict unsuccessfully – to find in Marshall any explicit assumption about perfect competition or any assertion that in a descriptive sense the world is composed of

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<sup>12</sup> I return to this procedure in the later chapter on discourse ethics.

atomistic firms engaged in perfect competition. (...) Marshall took the world as it is; he sought to construct an 'engine' to analyze it, not a photographic reproduction of it." (Friedman, 1953, pp. 34-35) In other words, atomism is part of a constructed economic engine, which is different from the real world.

Atomism mostly seems to be used by its enemies, whereas a more neutral term is individualism. Moreover, these enemies by and large addresses *social* atomism, as the critique by Taylor in his famous paper "Atomism" (Taylor, 1985, p. 187). This is not the same starting point as the holistic ontology of ecological economics with its origins in nature.

### **2.10 Weak and Strong with the same ontology**

I have argued that neoclassical economics and Weak are first and foremost are methodological. The transfer to the ontological stand of paper 3 is still to denote Weak as MI, but to ascribe the world view of OH to Weak. Paper 3 appeals to researchers from Weak and Strong to meet under this umbrella of OH, in order to discuss mitigating climate change. And sceptical proponents of Weak should be reminded that OH has its origin in the existence of ecosystems and a holistic nature, and for the purpose of reflecting this fact also in economics.<sup>13</sup>

In paper 3 and all other cases in which nature is a factor, OH must be explicit and elaborated upon. This will constrain substitution from nature to the economy.

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<sup>13</sup> The practical arena of paper 2, and the theme of mitigating climate change, is under close surveillance by politicians, bureaucrats, NGO's and journalists. Based on today's knowledge about ecosystems, arguments based on denying that nature is holistic are unlikely to be publicly accepted.

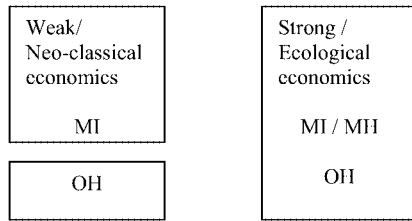


Figure 2.2: Ontological holism (OH) of Weak and Strong. The possibility for cooperation between Weak and Strong is that OH is described explicitly.

In the model shown in Figure 2.2, the necessity of substantial discussions concluded in paper 2 does not have to be dismissed because of divergent world views. Let us have another look at one of the citations above from Daly and Farley (2004, p. 42): “Neoclassical economists reduce value to the level of individual tastes or preferences, about which it is senseless to argue”. As stated above, OH is to be ascribed explicitly to Weak. So if the individual tastes of neoclassical economics negatively affect ecosystems, this will be commented upon in light of the OH. The individual preferences of neoclassical economics will be constrained by an explicit and deliberate OH.

In paper 1, a world view of atomism is ascribed to Weak. Based on the practical experience mentioned in paper 2, paper 3 recommends another approach in which OH is ascribed to Weak. The theoretical justification is argued for. The motivation and practical outcome is the present policy arena of the Guidelines in which substantial issues can be debated in the light of Weak and Strong, today. This debate should neither be dismissed on the grounds of overlapping consensus, nor on the grounds of Weak and Strong being incommensurable due to different world views. The substantial debate represents a stepping stone on the long journey from Weak towards Strong. Neumayer also rejects Weak and Strong being mutually exclusive. He explains the difference as Strong representing a higher level paradigm than Weak, in the sense of Kuhn (Neumayer, 2003, p. 28).

Two other schools of thoughts also suggest including MI into an ontology recognizing the ecological constraints. One is the field of human ecology, an emerging interdisciplinary field that studies the interrelationships between humans and the environment. Here reductionism is not denied, but is said to be helpful when linked to larger synthesis (Steiner, 2002, p. 36). Another school of thought is evolutionary economics (Dopfer, 2001). The resemblance with Strong is that it builds on, amongst other things, the laws of thermodynamics and the growing degree of entropy – as described by Georgescu-Roegen<sup>14</sup> (Georgescu-Roegen, 1971). Evolutionary economics<sup>15</sup> describes the methodology of neoclassical economics as instrumentalist. Instrumentalism together with the absence of ontological claims, yield the serious implication of no true possibility of falsification. “Unless there are no ontological claims raised together with empirical observations we cannot assess the relative theoretical importance of certain aspects of reality but are completely free to move the facts between ‘theoretical core’ and ‘protective belt’. This is why instrumentalism finally leads to relativism (see again Popper, 1983)” (Herrmann- Pillath, 2001, p. 97). Evolutionary economics admits that mainstream economics does grasp one important aspect of reality, but points out that this methodology must not be the overarching one. There is a need for interdisciplinary discourse (Herrmann- Pillath, 2001, pp. 129-130). The paper by Herrmann-Pillath is inspired by the organic process philosophy of Whitehead (Dopfer, 2001, p. 8). The philosophy of Whitehead is a common denominator to be found in schools of thoughts involving Strong (Daly & Farley, 2004; Ingebrigtsen & Jakobsen, 2007).

## 2.11 Different perspectives

The previous sub-chapters have focused on a common denominator of Weak and Strong – that of OH. However, communication between Weak and Strong seldom

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<sup>14</sup> I return to this topic in the chapter on ecological economics.

<sup>15</sup> Evolutionary economics builds on a bimodal ontology of mind and world. It assumes that mind is an autonomous causal force in the economic process, one which is, however, in continuous interaction with the world which leads to changes in the mental process, i.e. the structure and content of knowledge (Herrmann- Pillath, 2001).

occurs. Weak and Strong do indeed belong to different schools of thoughts, and can be defined as separate discourses: “It is obvious that the advocates of both weak and strong sustainable development have their own hermeneutic discursive universe from which the opposing party is consciously excluded, while any opposing interpretations are rejected as invalid, non-rational and inferior.” (Kallio, Nordberg, & Ahonen, 2007, p. 45) This thesis considers both discourses, Weak and Strong, in relation to mitigating climate change. Common denominators are sought, but differences are pinpointed as well.

The approach of considering seemingly opposing perspectives is inspired by others who have argued for possibilities to promote mutual understanding among practitioners of different paradigms (Dow, 1990, p. 155). Dow says this will provide a basis not only for tolerance, but also for creative cross-paradigm developments<sup>16</sup>. She stresses that economists should recognize this constructive role, and not just leave it to philosophers.

Paper 1 predominantly keeps within the perspective or discourse of Strong. Paper 2 analyses how discussions between the ethical positions of Weak and Strong are hindered. In paper 3, it is argued why mitigating climate change will benefit from a more even cooperation in a joint discourse between Weak and Strong – in contrast to what was detected in paper 2. The main arguments for a joint discourse are as follows: communicating and arguing with the majority of academics, bureaucrats and politicians working within the sphere of Weak is an opportunity to influence. To influence the current situation of Weak with the ideas and goals of Strong requires more people - researchers, bureaucrats, politicians, journalists, and people in the street - knowing of and understanding Strong. It requires more people recognizing that there is an alternative to Weak, and that the situation of Weak can be moved in a direction towards Strong. This approach is based on the belief that rational arguments have strong persuasive power (Røpke, 2005, p. 281). To move the situation of Weak towards Strong can also be described in the language of Giddens (Giddens, 2009, p.

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<sup>16</sup> In paper 3 I elaborate on why the paradigmatic approach is not pursued in this thesis.

114) as 'radicalism of the centre'. "It means, first of all, gaining widespread public support for radical actions – that is, for the conjunction of innovation and long-term thinking which is the condition necessary for responding to climate change. It implies the reform of the state."<sup>17</sup>

## 2.12 Discourse analysis

Discourse analysis (DA) is a social constructivist approach which means that the scientist tries to bracket personal standpoints so that they will not overshadow the analysis (Winther Jørgensen & Phillips, 1999, p. 31). DA is used as a reflexive tool to mediate, compare and contrast Weak and Strong. This reflexivity is horizontal; between two different perspectives.

Brown describes the traditional force within economics as to compose order, coherence, unified language and a unified value system. Opposing or competing discourse is denied validity, or described as antitheses of each other (V. Brown, 2009, pp. 379-380). But developments in philosophy and literary theory have begun to alert economists to the significance of language and plenitude of meaning. "Within economics, these developments have stimulated a new interest in language, with different approaches emphasizing rhetoric, hermeneutics, literary theory, discourse analysis and constructivism."(V. Brown, 2009, p. 368)

Still, DA is not an approach commonly used by economists. Mediating between Weak and Strong using DA could have been done by persons with other professional background, for instance sociology. My professional background however, entails both schools of thoughts discussed in this thesis. This will most probably provide another outcome than if a sociologist were to carry out work on the same topic. My background enables a deeper theoretical economic discussion, than would be possible

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<sup>17</sup> Giddens is not a spokesperson for Strong, as he rejects giving nature intrinsic value. His recommendations can be described as a reform of Weak in, amongst other things, questioning economic growth in the developed countries (Giddens, 2009).



for a sociologist. It is important to emphasize that I use DA as a tool, without entering into the strong philosophical tradition of postmodernism.

The approach of this thesis is inspired by the *critical* version of DA, as articulated and developed by Norman Fairclough (Winther Jørgensen & Phillips, 1999). Critical DA is not politically neutral, but is politically engaged in social change. The critique seeks to reveal or expose different power relations and the results of the critique are to be used for radical social change in favour of suppressed groups. Central to the approach by Fairclough is that discourses both reproduce and change knowledge. When a ruling discourse is challenged by an alternative discourse - describing what could have been outside the ruling discourse - the alternative discourse contributes to changing knowledge. Norton calls an undisputed hegemony for towers: "Failures of communication have led in turn to failures of policies; and worse, because towers function to keep out criticism and alternative viewpoints, those who live and work in towers fails to learn and develop new and more satisfactory policies." (Norton, 2005, p. 42)

### **2.12.1 Discourse analysis in the 3 papers**

Critical DA is used to reveal the power imbalance between Weak and Strong. The existing economic policy on mitigating climate change, primarily inspired by Weak, is critically analysed. The alternative discourse of Strong describes what can be there - outside the ruling discourse of Weak. Paper 1 primarily keeps within the discourse of Strong. In paper 2, an empirical critical DA is carried out. In accordance with Fairclough, two dimensions are focused on (Winther Jørgensen & Phillips, 1999, pp. 79-80): The communicative case, here the public documents on the Ethical Guidelines of the Norwegian States Pension Fund, and the different theoretical discourse types represented by Weak and Strong.

Both papers 2 and 3 suggest a reflexive approach by using both discourses, Weak and Strong, in a joint discourse. The rationale is to influence substantial debates between Weak and Strong, in order to improve the power imbalance between the two. The competing discourses of Weak and Strong give different meanings to climate change. Strong sees climate change as a symptom of deeper structural imbalances between nature and the economy, explaining this by way of concepts such as drivers and interlinked pressures. Weak sees climate change as a problem linked to emission of greenhouse gases. As argued in this thesis, this stands out as the inadequacy of Weak. On the other hand, Strong is far from being generally recognised as providing an overall strategy for climate change. There exists then a power imbalance - in favour of Weak. Herein lies the inadequacy of Strong. A joint theoretical discourse, consisting of basic conceptual elements is proposed to remedy the inadequacies on both sides. Using this approach, the differences between Weak and Strong are considered differences of degree and type, rather than as differences that hold in an absolute sense (V. Brown, 2009, p. 380; Neumayer, 2003)<sup>18</sup>. This may well be deemed provocative by proponents of both Weak and Strong.

Constructing a joint theoretical discourse to analyse, mediate, compare and contrast Weak and Strong provides a step towards changing policy. The joint theoretical discourse offers a new arena for debating policy on mitigating climate change, in order to influence policy in new ways. This joint discourse is less one-sidedly focused on the negative features of society and institutions, than the critical tradition normally portrays. Still, the construction of this arena is motivated by breaking or changing the hegemony of Weak. Norton (Norton, 2005) also suggests discourse as a tool for moving in a more sustainable direction, although derived from a different line of thought, as discussed in paper 3.

Using discourse analysis to discuss different perspectives, comparing and contrasting, is not very common in the sphere of policy making. “Unfortunately, policymakers and

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<sup>18</sup> Neumayer calls Strong a higher level paradigm, in the sense of Kuhn, rather than a mutually exclusive alternative to neoclassical economics (Neumayer, 2003, p.28).

decision makers often seem to fear that making the implicit and underlying dimensions of the discourse an explicit object of reflection will undermine political will to act in accordance with their own policy preferences.”(Thompson & Rayner, 1998, pp. 335-336) A central question here is whether researchers, bureaucrats and politicians within the hegemony of Weak are *interested* in explicitly elaborating on the implicit and underlying dimensions of a discourse. Understanding other standpoints and one’s own institutional bias may lead to changes - both in theories and practice. I therefore put forward that a joint theoretical discourse is for *interested* proponents of Weak and Strong. The policy arena of paper 2 is, however, a rare opportunity for proponents of Strong to meet proponents of Weak. In respect of the severe environmental situation, it should be an obligation by researchers committed to Strong.

### **2.13 The double and triple hermeneutics**

Alvesson and Sköldbberg (2005) say some single theories are reflexive in nature. This goes for the double hermeneutics which is part of the broader ‘structuration theory’ by Anthony Giddens. It may seem somewhat brutal to exert only a small part of the structuration theory. This can be partly defended by the reflexive approach, as described by Alvesson and Sköldbberg (2005), saying strong theoretical consistency is not an ideal.

“What is hermeneutic about the double hermeneutic? The appropriateness of the term derives from the double process of translation or interpretation which is involved. Sociological descriptions have the task of mediating the frames of meaning within which actors orient their conduct.” (Giddens, 2004, p. 284) What then has double hermeneutics to do in a thesis discussing two different schools of economics? Well, it provides a way of understanding how Weak and Strong, or neoclassical and ecological economics, become and stay separate school of thoughts or separate structures.

The starting point of the double hermeneutics is social actors having their 1<sup>st</sup> order subjective and inter-subjective meanings and interpretations of reality, or in this case, meanings on mitigating climate change. “Double hermeneutics is what interpretive social scientists are engaged in when they attempt to understand and develop knowledge about this reality. Social science is thus a matter of interpreting interpretive beings.” (Alvesson & Sköldberg, 2005, p. 144) When researchers interpret the social actors’ meanings of reality, they arrive at 2<sup>nd</sup> order interpretations.

Weak builds on the same values and logic driving the market system in modern capitalist society. The introduction of Weak, as in the report “Our Common Future” (The World Commission on Environment and Development, 1987), confirmed and strengthened these dominant forces in society. Research within the methodology and discourse of Weak reproduces and reinterprets these dominant ideas through the double hermeneutics.

Strong has a much longer way to go to – in order to influence society. The 2<sup>nd</sup> order interpretations within Strong are outnumbered by Weak, also through structural forces and institutions built within the logic of Weak – as manifested in The Bank of Norway (Norges Bank), The Ministry of Finance, universities teaching mainstream economics, and the funding institute, the Research Council of Norway (Research Council of Norway, 2008; Research Council of Norway & Gassnova, 2008). This thesis argues why and how these existing power institutions can be influenced by Strong. Consequently, the joint discourse of paper 3 does not dismiss Weak per se, but does impose limitations and constraints on Weak. Using this approach, the social actors and researchers comfortable within the discourse of Weak are not dismissed as such, but can be influenced or commented upon by adding a critical dimension to the reproducing force of double hermeneutics. Critical inspired research, such as critical DA and reflective research, can be described as a triple hermeneutics (Alvesson & Sköldberg, 2005, pp. 144-145).

Giddens speaks of ontological security, a security bound up in believing and acting without questioning the routine. As argued in the previous chapter, ecological economics and Strong have an explicit ontological holism. This can be denoted as the ontological security of Strong. In the field of neoclassical economics I argue that this security is first and foremost methodological, as ontological issues are largely neglected. This leaves room for adding an explicit ontology to Weak, and influencing society through triple hermeneutics. Giddens claims it is important not to mistake a methodological procedure for an ontological reality (Giddens, 2004, p. 285). As we have seen, this distinction is not always so clear-cut.

Giddens denies structural and functionalistic explanations of action, as they do not leave room for consciously motivated action. At the same time he denies that all actions are consciously motivated, as most of them rather take the form of a continuous flow. The main activity is normally consciously motivated, but it can consist of a series of less conscious actions – sometimes based on routine. (Gunteriusen, 1999, pp. 350-354) Taking part in a joint discourse of Weak and Strong must be a consciously motivated action. It is an invitation to take a scientific approach, where the demand for consciously motivated actions is high.

As already clarified, using the double hermeneutics in relation to Strong demands saying that Giddens himself dismisses giving nature intrinsic value. The goal is to be human values, but with a critical attitude towards economic growth. “The green movement will lose (or has already lost) its identity as environmental politics become part of the mainstream.” (Giddens, 2009, p. 56) This is probably the fear of proponents of Strong, and an important reason for not searching for common denominators and compromises with Weak. I still see it as being a distinct possibility that mainstream politics can become *influenced* by environmental politics. That Strong can influence Weak.

Figure 2.3 below summarizes and illustrates the methodology of this thesis.

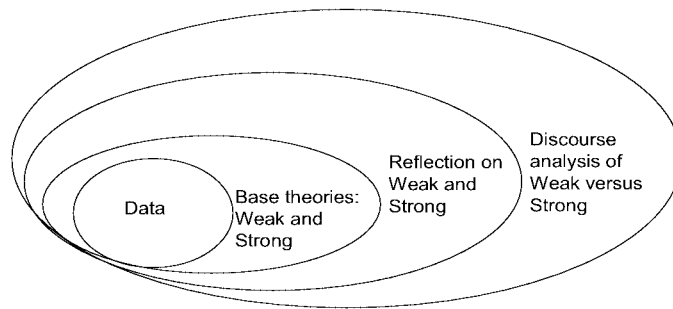


Figure 2.3: The reflexive methodology of the thesis.

### 2.14 Validity and reliability

The reflexive approach of comparing Weak and Strong is also a tool in striving for validity. “Validity is another word for truth. Sometimes one doubts the validity of an explanation because the researcher has clearly made no attempt to deal with contrary cases.” (Silverman, 2005, p. 210) By using both perspectives of Weak and Strong, the chance is that relevant contrary cases are brought forward. Still, Weak and Strong does not, however, cover all possible ways of considering the economics of mitigating climate change.

This thesis aims at being as transparent for readers as possible and practical achievable. This goes for my professional background, my rationale for choosing the cases I did, as well as theories and methodologies used. The empiric of this field is sought among sources with authority, on both ‘sides’. This ensures a criterion for reliability. But the empirical field of papers 1 and 2 is also characterised by little available relevant data, and a general reluctance and rejection of possible interviewees

to get involved in the theme of this thesis. Therefore, statements from less common sources such as TV and press-releases are also used.

In relation to external evaluation of the quality, all three papers in this thesis have been subject to external review. The papers have only one author, as requested by a second supervisor. The publication status for these papers is as presented in Table 1 below.

Paper 1 <sup>19</sup>	International Journal of Social Economics	Published January 2008
Paper 2	Environmental Science and Policy	Published online January 2010
Paper 3 <sup>20</sup>	Ecological Economics	Published January 2010

Table 1: Publication status of the papers.

### 3. Weak in a reflective approach

#### 3.1. Classical and neoclassical economics

The word economics originates from Greek, where *oikonomia* means ‘running a household’. Economics as a profession – with clear distinctions from history, philosophy and law – started developing in the 18<sup>th</sup> century. Classical economics is often referred to as starting with Adam Smith’s *Wealth of Nations* (1776), and ending with John Stuart Mill (1806 - 1873). Mill is amongst other things known for his

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<sup>19</sup> A preliminary version of this paper is published in “Norwegian-Russian Cooperation in Business Education and Research: Vision and Challenges in Perspectives of the High North” (Nilsen, 2007)

<sup>20</sup> This paper is presented at the conference ‘World Social Sciences Forum. One Planet – Worlds apart?’ In Bergen, May 2009, poster session.

contribution to utilitarianism (Ryan, 1987), but also for his concern for the best use of natural environment (Røpke, 2004, p. 300).

The early economics of natural resources is also linked to Malthus and Jevons, both known as resource pessimists. Malthus (1798) was convinced that production of food could not grow as much and as fast as the population, whereas Jevons (1865) warned against the detrimental effects for the British industry of running out of coal. Neither considered the power of technical progress. Ricardo (1817) first realized that land availability is more a question of relative as opposed to absolute scarcity. (Neumayer, 2003, p. 45)

In the 1870's an essential change within economics started with a breakthrough for the marginalistic approach (Sandmo, 2006, p. 182). Central names during this period are Menger, Jevons, Walras, Fisher and Marshall. The fundamental characteristics of this marginalistic approach are a greater emphasis on 1) methodological individualism, 2) marginal utility, and 3) mathematical formulations. About this time, the concern about resource availability vanished. These characteristics also form the basis of today's neoclassical economics. In the last 100 years, several new directions have emerged, as Keynesianism, institutional economics and welfare economics. Other labels given to neoclassical economics are mainstream economics and "mainstream, orthodox economics" (Blaug, 1997, p. 138).

In a book for courses in environmental economics, sustainable development is presented in the following way: "To economists this concept is connected with the sustainability and improvement of life quality for humans." (Førsund & Strøm, 2000, p. 218, my translation) Environmental economics do have many similarities with welfare economics. Welfare economics studies the environment in the light of the economic system's allocative failures, the measurement of the surplus foregone to these failures, and the design of allocation systems capable of realizing the foregone surpluses (Crocker, 1999). These tasks also form part of environmental economics.



Two major contributors to weak sustainability are Robert Solow and John Hartwich (Neumayer, 2003). “Most, but not all, economists are weak sustainabilistists” (Perman, Ma, McGilvray, & Common, 2003, p. 91). The few left-over economists not being weak sustainabilistists are often proponents of strong sustainability. Mostly the words ‘weak’ and ‘strong’ are simply described as a means of separating two distinct definitions of sustainable development. But what happens if we put ‘weak’ in front of the word ‘sustainable’? The development is to be upheld, or improved. This is the goal of Weak, implying that it is the sustainability of nature that is weakened. This interpretation is strengthened by the terms ‘strong sustainability’ and ‘very strong sustainability’ where the difference is how much nature is to be sustained – often argued by way of deontology and non-anthropocentric ethical theories respectively <sup>21</sup>.

Weak is defined as sustained development where utility/consumption is non-declining over time (Pezzey, 1997). For instance, a lake is reduced or destroyed and is replaced by a pool. If the users of the lake maintain their utility-level by swapping from lake to pool, then the development is sustained (Førsund & Strøm, 2000, p. 218; Nilsen, 2008). The goal is to sustain a constant level of utility/consumption where nature, capital- and cultural goods can be substituted with one another to achieve this goal. Neither nature nor capital has intrinsic value, but is instrumental to achieve the highest possible level of utility. This is also called ‘The constant capital rule’; “This generation must pass on to future generations an aggregate capital stock no smaller in value than the one it inherited.” (Ison, Wall, & Peake, 2002, p. 112). As stated in an earlier section, a main challenge is to calculate how big the compensation in capital must be for the loss of natural goods (Asheim, 1995, p. 233).

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<sup>21</sup> The term ‘very strong sustainability’ is used to compare and describe the deep ecologist school of thought, in relation to neoclassical and ecological economics (Ison, Wall, & Peake, 2002, p. 113). The proponents of deep ecological schools themselves, however, do not talk of sustainability in any form, but on bio-centric equality. (Sessions, 1995)

### 3.2 Policy advice based on neoclassical economics

A book named “The analysis of society and economic theory” (my translation) were required reading at the University of Tromsø in Norway for bachelor-students in the 1980’s and beginning of 1990’s, including for myself. In the introduction it says: “But the economic theory does *not* give an answer to economic-political questions. So neither then does this book. It is an attempt to introduce a theoretical method which can be used by the analysis of these problems: it prescribes *no solutions*. And to finish this introduction as we started: solutions include far more than theory.” (Dedekam, 1977, p. 14, my translation) Another more recent book, and standard required reading in ‘environmental economics’-courses in Norway, says that economists should separate between what is the case and what are the case evaluations (Førsund & Strøm, 2000, p. 7). In other words: there is a fundamental distinction between is and ought, between empirical questions and normative questions. This position was indeed also held by David Hume (1711-1776), who still maintains a strong position in neoclassical economics. But economists do provide policy advice, i.e. advice about how policy should be. “Many economists are not content with understanding economic outcomes but also wish to have a significant policy influence on them.” (Nelson, 2006, p. 260) When economists give policy advice they should be explicit about whether normative discussions are part of their economic theoretical contribution. Politicians in turn should be aware of the fundamental distinction between science based on ‘is’, and science including discussions on ‘ought’.

Another point of relevance with regard to policy advice based on neoclassical economics is instrumentalism and the goal of prediction, as formulated by Friedman. As discussed in an earlier section, instrumentalism is still used. “Homo Oeconomicus will still be around for a long time to come, even if we come to the conclusion that empathies and moral is determining for how the market works.” (Brekke, 2008, p. 41, my translation) In the same article it says that even discussions and conversations are important for the economy, they are phenomena incomprehensible from an economic theoretical perspective.

“That scientists do not usually ask or debate what makes a particular problem or solution legitimate tempts us to suppose that, at least intuitively, they know the answer. But it may only indicate that neither the question nor the answer is felt to be relevant to their research.” (Kuhn, 1996, p. 46) A policy based solely on economists’ advice will be designed without considering or taking into account discussions or ethics. In the light of the citation above by Kuhn, this does *not* mean that conversations and ethics are not relevant to the policy area. It is imperative that policy makers are aware of this difference. If not, instrumentalism – and descriptivism as well – may have serious implications.

Adding an explicit ontology of holism to frame the regime of neoclassical economics will increase the awareness about the issues raised in this chapter.

## **4. Strong in a reflective approach**

Strong sustainability is part of several relatively new theories named 'green', as ecological values form part of their value bases. One of the most developed green theories today is probably the theory of ecological economics (Costanza, 1991; Daly & Farley, 2004; Gowdy & Erickson, 2005). The main part of this chapter studies the development of ecological economics, and rests to a large extent on the thorough and informative contributions made by Røpke (Røpke, 2004, 2005).

### **4.1 Ecological economics**

Most "green" theories, such as ecological economics, build on the laws of thermodynamics. They were first expressed in 1865 by Professor of Physics Rudolf Clausius, stating: 1) the amount of energy in the universe is constant, and 2) the entropy of an isolated physical system will increase. The word entropy is put together from "energy" and the Greek word for transformation *tropos* (Ingebrigtsen & Jakobsen, 2006, p. 582). When energy is transformed from one physical state to another, through for instance combustion, the entropy increases. An increase in entropy is a decrease in available, or free, energy. This process is irrevocable in a closed system (Daly & Farley, 2004). It is the free energy that is of interest in economic activity, and free energy can only be used once. Thermodynamics was unacknowledged by economists until Georgescu-Roegen wrote the epoch-making book "The Entropy Law and the Economic Process" (1971). Several contemporary social and environmental issues prepared the ground for this book and for the development of ecological economics. In the 1960's general public awareness concerning environmental problems rose, such as pollution from nuclear activity, pesticides, chemical fertilizers, detergents etc. An important kick-starter was given by Rachel Carson in 1962 in her book about the severe impact of pesticides (Carson, Lear, & Wilson, 2002). Other related discourses were the debate on the sufficiency of

food, energy and other resources, in light of the dramatic increase in world population (Meadows, Randers, & Meadows, 2005; Røpke, 2004, pp. 297-298).

Ecology developed into a specific branch of biology during the 1950's, and strongly influenced the creation of ecological economics. Key features were and are studies of ecosystems in terms of energy and flows, mutual dependencies and cooperation instead of competition. Early influential scientists were the Odum brothers, writing textbooks starting with the whole before the parts, and later applying this to social issues (Odum, 1971).

Ecological economics was institutionalized with the establishment of the International Society for Ecological Economics in 1988, and by the first issue of the journal *Ecological Economics* in 1989 (Røpke, 2004, p. 293). Røpke summarizes the basic idea of ecological economics as follows: "The human economy is embedded in nature, and economic processes are also always natural processes in the sense that they can be seen as biological, physical and chemical processes and transformations; therefore, the economy ought to be studied also, but not only, as a natural object, so economic processes should also be conceptualized in terms usually used to describe processes in nature." (2004, p. 312) A core belief among ecological economists is that there are values to guide our choices, besides merely personal desire (Daly & Farley, 2004, p. 43). Another core belief is probably the scale issue; there are physical limits to growth. (Røpke, 2005, p. 274)

Still continuous discussions go on about whether ecological economics is a discipline, a new paradigm, or a part of environmental economics. "Ecological economics is not a discipline, nor does it aspire to become one. For the lack of a better term, we call it 'transdiscipline'. (...) Furthermore, ecological economics is still 'under construction', and therefore no fully accepted methodologies and tools exist. Instead, its practitioners draw on methodologies and tools from various disciplines to address a specific problem." (Daly & Farley, 2004) The last citation is a good description of this thesis'

approach: multidisciplinary, reflexive and addressing specific problems<sup>22</sup>. This is not a unanimous way of characterizing ecological economics; in fact several different directions or tensions within ecological economics do exist. Røpke (2005, chapter 6.4) classifies them into several groups, the three most relevant in this thesis are listed here:

- 1) Researchers who want to change neo-classical economics into ecological economics.
- 2) Researchers who look for a more immediate influence on the political agenda, amongst other things by forming alliances with neoclassical economists.
- 3) Environmental economists who leave room for ecological economics as a subfield of environmental economics.

This thesis fits into group 2) above, and I therefore briefly elaborate on this group in the following. Researchers within group 2) believe that rational arguments have strong persuasive power, and remain critical to the preoccupation of forming disciplines (Røpke, 2005, pp. 282-283). Doing research contributing to group 2), I will modify this last point: critical towards the preoccupation in forming disciplines. I believe it is important *also* to carry out work on constituting the discipline of ecological economics. This is important because it provides legitimacy in the scientific competition between schools of thought. Such legitimacy is also a precondition for using theories in a reflexive approach - as in this thesis. The scientific competition between schools of thoughts is visible through a wide range of arrangements; type of papers published in which journals, amount of funding, what to teach students, which researchers are hired, and last but not least – which thoughts influence and dominate policy. Establishing ecological economics as a special discipline is therefore also important, although not the focus of this thesis.

The core message of group 2) is the focus on the seriousness of the environmental situation. To emphasize this message, alliances with mainstream economists can be

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<sup>22</sup> Røpke (2005, p. 287, footnote 6) claims ecological economics has much in common with management studies, as they both fit the category 'fragmented adhocracy' – a category within a typology for different scientific fields.

formed. “Actually, a general critique of neoclassical economics is sometimes seen as outright counterproductive, because it tends to scare away both the influential economists and the large number of potential members who could fill the ranks of the society.” (Røpke, 2005, p. 281) Paper number 3 in this thesis is an example on how such an alliance or cooperation between ecological economics and neoclassical economics can take form, focusing on theoretical consensus, differences and compromises.

## **4.2 Policy advice based on ecological economics**

Ecological economics is explicitly policy oriented, its aim is to develop practical policies for sustainability (Adams, 2009, p. 148). Ecological economists share a belief that the economy must be influenced by the core characteristics of nature: nature has intrinsic value, nature has limited resources, and nature consists of holistic ecosystems. Ecological economics tries to relate the part of economics that concerns nature to these mentioned characteristics of nature.

In ecological economics, nature or the ecology is the point of departure. The subsequent economic system is a human construction, which can be altered. When the economic system affects nature negatively through pollution, loss of biodiversity, climate change, massive land use change etc., ecological economics advises changing the economic system. Therefore, policy advice from ecological economics is based on a need to change, and sometimes dramatically. And what needs to change is human behaviour or policy, mainly characterized through the economy. Policy advice based on ecological economics is therefore predominantly of a normative nature.

Most ecological economists consider it important actually to influence the political agenda (Røpke, 2005, p. 287). But a challenge for policy makers is that people are sceptical about dramatic changes implying constraints on present behaviour. The reflexive and cooperative approach argued for in this thesis is to make the necessary

changes less dramatic through using already established institutions, but to challenge and change the practice of these institutions from within. Another challenge for ecological economics is that the usual prescribed solution means using a very long-term approach. (Kallio, Nordberg, & Ahonen, 2007) The reflexive approach, especially highlighted in paper 3, aims for a more immediate influence on policy – a step-by-step approach towards, hopefully, a future predominantly based on Strong.



## **5. Ethical bases of Weak and Strong**

The case of this thesis is Norwegian economic policy regarding mitigating climate change, in relation to Norwegian petroleum policy. The focus area exemplified in paper 2 is the *income* generated at state level from the petroleum industry, and how this is managed in relation to mitigating climate change.

The enormous revenues from the petroleum industry received by the Norwegian state are stored in the Norwegian Government Pension Fund – Global (the Fund), with use of the Fund being guided by ethical guidelines. The ethical guidelines allow exclusion of firms which contribute to severe environmental damage (The Norwegian Ministry of Finance, 2007). These ethical guidelines build upon a consequentialist and a deontological approach, which are the ethical foundations of Weak and Strong respectively. This chapter describes these ethical theories, which also form part of paper 3.

### **5.1 Why ethics is important**

The word ethics is derived from the Greek word *ethos*, meaning “custom”. Ethics consist of the general beliefs, attitudes, or standards that guide customary behaviour (DesJardins, 2006, p. 19). All theories, actions and meanings can be judged from various perspectives; juridical, financial, economic and so on. To see an action in an ethical perspective is to weigh the different parts against each other. The ethical perspective is the overall perspective. (Falkenberg & Nordenstam, 1998, p. 16)

The relevance of ethical theories for environmental concerns is described as follows by DesJardins (2006, p. xiv): “The tendency in our culture is to treat such issues as simply scientific, technological, or political problems. But they are much more than that. These environmental and ecological controversies raise fundamental questions about what we as human beings value, about the kind of beings we are, the kinds of lives we

should live, our place in nature, and the kind of world in which we might flourish. In short, environmental problems raise fundamental questions of ethics and philosophy.” Science is not value free. Weak and Strong have different ethical bases, with different implications for policy and environment. Ethics can be a major policy tool in mitigating climate change, as discussed in paper 2. Further in this chapter two main categories of normative ethical theories are discussed; teleology and deontology.

## **5.2 The ethics of Weak**

The ethics of Weak is utilitarianism, which belongs to the group of teleological ethics. Teleology is traced back to Aristotle (4<sup>th</sup> century B.C.), who believed all natural objects have a natural goal. In the Greek language it was identified as the object’s telos. Aristotle believed that living things were good when fulfilling their natural activity. Teleology was further developed by Thomas Aquinas (13<sup>th</sup> century A.D.), who synthesized Christian theology with Aristotle’s science and ethics. (DesJardins, 2006, chapter 2.4)

Utilitarianism differs from teleology in that it is instrumental. Human action is not seen as good or bad. It is the consequence that is good or bad (Johansen & Vetlesen, 2000, p. 137). It is not bad to betray a friend, it is not a bad thing to do, but betrayals are bad things to happen. (Darwall, 2008, p. 2) Several versions of the theory have evolved, but in general the theory says to maximize the overall good, or to produce the greatest good for the greatest number – and to minimize pain. The various versions of utilitarianism offer distinctive descriptions of the good, but a general requirement is that the good must - in some ways - be measured or quantified. This is in contrast to most other ethical theories.

The founders of utilitarianism are Jeremy Bentham (1748-1832) and John Stuart Mill (1806 – 1873). Bentham said all values can be added, and are commensurable. All sensing organisms with feeling, including animals, seek lust and pleasure. These

organisms are given intrinsic value, a value due to their mere existence, because of their ability to feel. This is hedonistic utilitarianism.

Mill's version of utilitarianism is that an action is right if it creates happiness, but there are qualitative - although diffuse - differences between "higher" and "lower" happiness (Johansen & Vetlesen, 2000, p. 142). A classical discussion within utilitarianism, then as now, is whether purely individual preferences are to constitute utility. Adam Smith (1723-1790) claimed that individuals should pursue their individual interests. Smith believed individual interest would naturally lead to the best interest of society, as the national income would be the highest possible. He did however make some reservations that this might not always be the case (Sandmo, 2006, p. 47), and that the ethics and norms of his time were not to be violated (Næss, 2001b, p. 792).

Mill too did not just mean that only individual preferences were to constitute utility. Mill says in his famous text 'Utilitarianism' from 1861, reprinted in a book edited by Ryan (1987, p. 288): "I must again repeat, what the assailants of utilitarianism seldom have the justice to acknowledge, that the happiness which forms the utilitarian standard of what is right in conduct, it not the agent's own happiness, but that of all concerned. As between his own happiness and that of others, utilitarianism requires him to be as strictly impartial as a disinterested and benevolent spectator." Mill's definition of utilitarianism is to include "that of all concerned", as cited above. In the case of climate change this implies choosing the global level, as climate change will affect everybody. Moreover, future generations must also be included as they are also part of "all concerned".

Another significant economist, though less famous than Smith and Mill, is Frank Knight, known as the founder of the Chicago school of economics. Knight stands though a long way from advocating ideas normally associated with the Chicago school, for instance those of Friedman and Stigler. Knight argued that the term individual, as used in economic theory, should be regarded as shorthand for family

(Nelson, 2006, p. 135). The Chicago school did not pursue Knight's view concerning the limitations of economic individualism. The maximization of individual utility has formed the base of neoclassical economics – also called preference-utilitarianism.

The main contributors to preference-utilitarianism are the English philosopher R.M. Hare (1919 - 1996) and the economist J.C. Harsanyi (1920 - 2000). Here the morally right action is that which produces the most favorable consequences for the people involved. Preference utilitarianism interprets the best consequences in terms of 'preference satisfaction'. What is good is described as the satisfaction of each person's individual preferences or desires, and a right action is that which leads to this satisfaction. This implies only self-conscious individuals, meaning only human beings. Preference-utilitarianism does not moralize over good or evil preferences. Preference-utilitarianism may therefore provide a good explanation of how humans have caused climate change.

Peter Singer is a leading contemporary advocate of preference utilitarianism, but with the important distinctness of including animals (Nyeng, 2002, p. 242). The criterion to be included or not is if they can suffer, which again takes us back again to Bentham's postulate.

### **5.3 Precautionary principles – limitations on utilitarianism**

General insecurity exists regarding the consequences of human interference in nature. We often do not know the total environmental consequences of human actions and activities, before the environmental damage is an irreversible fact. We do not know the name of the next man-made serious environmental damage or catastrophe, nor the consequences for people in marginal life situations and regions. This must not stop us from the long-term work of preventing, instead of waiting to call on the much more challenging emergency action. This is why we need to abide by a precautionary principle when interfering in nature.

Many definitions exist of a precautionary principle. In this chapter I look into the historical development of scientific knowledge related to climate change, related to what we knew at what time. I then relate this to two different versions of the precautionary principle - I call them A and B.

The characteristic of carbon dioxide trapping the sun's heat was known long before it became a problem. In 1896 a Swedish chemist, Arrhenius, calculated that a doubling in carbon dioxide (CO<sub>2</sub>) concentrations would increase mean or middle global temperature by about 5 degrees Celsius (Barrett, 2003, p. 363). During the following decades and up until today, computer models have become increasingly more sophisticated and technologically more advanced. The estimates have generally varied between an increase from 1 to 10 degrees Celsius, leaving Arrhenius' calculation as a rather impressive median temperature rise. But from the 1940's to the 1970's the earth's average surface temperature declined. The amount of CO<sub>2</sub> released into the atmosphere rose, undoubtedly. So the natural scientists and their computer models were discredited - and also the idea that CO<sub>2</sub> had anything to do with rising temperature at all. It may be that the unknown factor of that time; minuscule particles known as aerosols played a significant role in the decline of temperature. The main type of aerosol at that time was sulphur dioxide which is released when low quality coal is burned (Flannery, 2005).

It seems now that natural scientists generally agreed that a rise in CO<sub>2</sub> concentration does lead to an increase in global temperature. But there were some unknown factors that made this development difficult to model, measure and predict. While waiting to discover these factors and the development of more complex models, we continued business as usual - or even more so: we increased our emissions of CO<sub>2</sub>. Difficulties in modeling and measuring made utilitarianism inappropriate as a precautionary approach.

### 5.3.1 The Precautionary principle A

The precautionary principle A is exemplified through the following quotation: “The most concrete element in this principle is that it switches the burden of proof so that it is those who are involved in potentially environmentally damaging activities who must prove that such activities are safe. Beyond this, the precautionary principle is extremely difficult to put into operation” (Skjærseth, 1999, p. 145). The precautionary principle A tells us that those involved in potentially environmental damaging activities must prove that such activities are safe. Clearly, in the early days of climate change we chose not to follow this principle.

In neoclassical economics, a technique called risk assessment exists. Risk assessment is a highly technically developed tool where probabilities are calculated and assigned. The probabilities of not causing an environmental problem are always the starting point. In contrast to the precautionary principle A, which says to prove or calculate the probabilities of being environmentally safe. Risk assessment is part of dominant scientific methodology. This is described in *The Methodology of Economics* (1997) by Mark Blaug. He says that a typical scientist acts according to the rule that the worst thing we can do is accept a falsehood. The second worst thing is failing to acknowledge the truth. “We may explore this attitude as stodgy conservatism, a typical manifestation of the unwillingness of those with vested interests in received doctrines to welcome new ideas, or we may hail it as a manifestation of healthy skepticism, the hallmark of all that is salutary in the scientific attitude.” (Blaug, 1997, p. 22). This can be exemplified by the common methodological approach in natural sciences and also in economics; making a hypothesis, testing it statistically using a large number of observations, and finding the probabilities of the hypothesis holding true. To be able to infer something about the characteristics of a bigger population, we can be either too strict or too lax in the testing procedure. But in statistics, the worst mistake we can do is called a Type I error, which is to reject the hypothesis  $H_0$  when it is not to be rejected. The negative version of the hypothesis to be tested is called  $H_0$  (Bhattacharyya & Johnson, 1977). So the decision-maker is conservative in the

treatment of  $H_0$ , and does not reject it without overwhelming evidence<sup>23</sup>. If the precautionary principle A were to be applied, it is those who are involved in potentially environmentally damaging activities who must prove that such activities are safe. The potential environmental damaging activity must be  $H_1$ , put to test, and the non-activity alternative is the conservative  $H_0$ .

It may seem as though the problem of including the precautionary principle A has much to do with the nature of a specific and dominant scientific methodology, as with utilitarianism – and that the two are interwoven.

Can utilitarianism be extended to support the precautionary principle A? If we define a global level and include future generations in our analyses, the good can be defined as including a sustained level of both economics and nature, and this will yield the highest amount of utility. This implies moving out of the neoclassical economical regime, back to reinterpreting the original definition of Bentham's utilitarianism. Moreover, the statistical principles and conservatism must be swapped in favor of environmentally safe action, which is no action when it comes to capital investments. This is a controversial issue for this methodological regime.

If the enormous complexity of drivers and interlinked pressures, presented in Chapter 1, is to be taken into consideration, this increases the challenges of measuring, and thereby reduces the suitability of utilitarianism even further.

### **5.3.2 The Precautionary principle B**

B can be illustrated by the following quotation: “Where there is no past ‘form’ and/or the underlying properties of the situation to be affected by the decision are not well understood, probabilities cannot be assigned by these means. This sort of situation is

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<sup>23</sup> The other, less serious mistake we can make is called a Type II error which is mistakenly to accept  $H_0$ .

exemplified by the so-called greenhouse effect in relation to prospective climate change, (...).” (Perman, Ma, McGilvray, & Common, 2003, p. 445). The precautionary principle B is even further from risk assessment in economics, than the precautionary principle A. The precautionary principle B says to be cautious because we know too little. Not that we spot or can measure one specific negative consequence. Utility is to be measured. The precautionary principle B finds no support in utilitarianism.

The precautionary principle B is in line with the critique made by the philosopher Arne Naess on economists’ tool of shadow-pricing nature: “So why not consider pieces of free nature, for instance, the value of *not* developing a certain river.” (Naess, 2001, p. 123) But the traditional economic methods are not developed to measure the value of ecological systems (Norton, 2005, p. 15).

#### **5.4 The ethics of Strong – deontology**

Strong has a heterogenic value-base, where both economical and ecological values are to be sustained. The idea of Strong is cross-disciplinary, and hence Strong does not have one unified ethical base. It can build on or be combined with ethical approaches as deontology (Ingebrigtsen & Jakobsen, 1997, p. 78), teleological ethics, discourse ethics or non-anthropocentric theories (DesJardins, 2006). “Instead, its practitioners draw on methodologies and tools from various disciplines to address a specific problem.” (Daly & Farley, 2004, p. xvii) This subchapter describes deontology as the ethical base for Strong. This choice is mainly made because the case of paper 2 is a discussion between consequentialism and deontology.

Deontology, derived from the Greek word for ‘duty’, is the other main category of ethics – the other being teleology. The most significant and well known contributor to deontology was the German philosopher Immanuel Kant (1724-1804). In deontology, human action has moral value, independently of the consequences of the action. What



characterizes human beings is our ability to act consciously and rationally. In this way human beings become responsible for their actions, as opposed to other creatures who act in accordance with their senses. Kant's categorical imperative says to act as if the action by your will is to become a universal law. "There is, therefore, only a single categorical imperative and it is this: act only in accordance with that maxim through which you can at the same time will that it become a universal law." (Kant, 2008, p. 12) How is deontology an appropriate ethic in the case of mitigating climate change? The case of paper 2 on the Norwegian Government Pension Fund –Global shows that deontology implies that some investments are to be avoided by principle. The principle is that the Norwegian Government Pension Fund –Global should not act as an accomplice in the case of severe unethical circumstances. (The Norwegian Ministry of Finance, 2003)

### **5.5 Limitations on deontology**

One aspect of the categorical imperative is that human beings have purpose in themselves, never just as a means (Wyller, 1996, p. 149). Deontology is traditionally ethics regulating actions among human beings, it is anthropocentric. The word anthropocentric comes from the Greek anthropos, meaning human being, and kentron, meaning centre. As climate change in the long run will affect the life of human beings negatively, deontology will guide us to act by principle to mitigate these negative changes upon human beings. "Pollution is thought wrong because it violates the rights of innocent people" (DesJardins, 2006, p. 36). With regard to the precautionary principles outlined in the previous chapter, the anthropocentric version of deontology poses a limitation. If we believe that pollution in the future will not violate the rights of human beings, the chances are that we will continue to pollute. From a holistic environmental point of view, as in ecological economics, this is unsatisfactory.

Deontology can also be applied within a non-anthropocentric frame. Then nature is given a moral status independent of human beings' own interests, attitudes, or feelings

(Nyeng, 2002, p. 243). Here, pollution must stop due to the moral status of nature, even if no human rights have been violated.

Kant moves the focus from the object or the thing concerned to the principle of the categorical imperative. The significance of the surroundings, culture and society, is in this way ignored (Vetlesen, 2007). In the case of paper 2, the Ethical Guidelines to the Norwegian Government Pension Fund –Global, the concept of overlapping consensus (Rawls, 1987) is the ethical foundation. Given this foundation, either utilitarianism or deontology is to be applied. The principle of overlapping consensus and deontology can be said to have divergent positions with regard to the significance of culture and society. Overlapping consensus advises going along with the overlapping consensus, because it is consensus. Deontology says to make up your own opinion, independently from an eventual consensus or majority opinion. The principle of overlapping consensus poses a fundamental limitation on exercising deontology in the Ethical Guidelines to the Norwegian Government Pension Fund - Global.

## 6. Discourse ethics

In the specific case of paper 2, a conclusion has to be drawn by the Ministry of Finance as to whether to invest or not. Either utilitarianism or deontology is to be chosen in each specific case. But paper 2 demonstrates the need to make discussions between the ethics of Weak and Strong more even, not biased by the hegemonic power of Weak represented by Norges Bank. Discourse ethics is suggested as a starting point, and an ethical basis.

Discourse ethics is also part of the group deontology, and builds on some of the same principles as Kant's ethics. But discourse ethics transfers Kant's principles to a group of persons. It implies transfer from a monologue to a dialogue.

“As an ethics based on the self-reflective insight of argumentation and on speech-act inherent preconditions, discourse ethics includes universalization in terms of general role taking and presupposes mutual recognition among the discussants, thus underlining socialization as a core element. Utilitarianism and classical deontology do not reflectively justify their own presupposition in the same sense; they remain pre-critical by presupposing or positing their basic normative position.”(Skirbekk, 1993, pp. 202-203)

Discourse ethics has mainly been developed by Jürgen Habermas, but scientists like Anthony Giddens and Hans Skjervheim have also contributed substantially to the philosophy of science that derives from discourse ethics. Broadly speaking, discourse ethics contributes to understanding what happens in science. These contributions do, amongst other things, enable critical analysis of societies and the use of qualitative data (Kalleberg, 1999, p. 27). Both provide fundamentals for this thesis. The main motivation for discourse ethics in this thesis is as a means of conflict resolution. And where the conflict is the different perspectives of Weak and Strong. Discourse ethics offers an opportunity to bring the arguments of Strong to the foreground, without being outnumbered by the dominance and institutionalization of Weak. It also offers

an opportunity for proponents of Weak to argue for their position in relation to mitigating climate change. Habermas claims that little communication between specialised sciences, here exemplified by Weak and Strong, weakens the rational basis of the scientific and public debate. It is an argument for cross-disciplinary approaches (Kalleberg, 1999, p. 15) as argued in paper 2 and 3.

Habermas summarizes the basic intentions of discourse ethics in the Principle of Discourse (D): “Only those norms can claim to be valid that meet (or could meet) with the approval of all affected in their capacity as participants in a practical discourse.” (Regh, 1997, p. 30). The most important features of a practical discourse is (Ingebrigtsen & Jakobsen, 2007, pp. 254-255; Kalleberg, 1999):

1. Openness: All individuals and organisations (or representatives from them) who can be affected, should be allowed to participate.
2. Equality: Everyone is given equal opportunities to contribute to the discourse, and is given the possibility to ask questions about any statement.
3. Sincerity: Everyone at any time has the possibility to introduce their own proposals to represent their beliefs.
4. Free of force: Everyone has the opportunity to express their own attitudes, wishes, and needs. Nobody must be hindered, whether by internal or by external forces, to make use of the above-mentioned rights.

## **6.1 Limitations on a discourse between Weak and Strong**

### **6.1.1 Hegemonic power of Weak**

Traditional ideologies have lost their persuasive power, as they do not grasp the complexity of modern society (Kalleberg, 1999, p. 11). On the other hand, discourse ethics recognizes the plurality of standpoints in public, politics and science. A practical limitation with regard to a discourse between Weak and Strong, is that proponents of Weak have little incentives in participating in such a discourse. Weak possesses a hegemonic power as utilitarianism is the unofficial ethical theory of most public policy (DesJardins, 2006, p. 32). In paper 2, the hegemonic power of Weak is represented and demonstrated through Norges Bank. The ethics of Strong, deontology, is represented by the Council on Ethics. In this regime the ethics of Norges Bank, consequentialism, is given explicit priority ahead of deontology. Norges Bank does not have to consider opposing arguments, except in a very limited number of situations. And with regard to mitigating climate change, discussions between consequentialism and deontology are not to be put on the agenda at all. The explanation given by the Council on Ethics is here that this is a political matter and therefore not to be discussed by the Council (Secretariat to the Council on Ethics, 2007b).

These constraints on a discourse show the importance of proponents of Strong realising that the initiative for a discourse rests on their shoulders. One cannot expect that proponents of Weak will invite challengers to their hegemony. First and foremost this thesis suggests a scientific discourse. But just as important is to communicate the scientific discourse to politicians, bureaucrats and lay-men, and if possible, open up the discourse to include them as well.

### **6.1.2 Ontology in science**

Strong has an immanent ontology of holism. The case for Weak is that it first and foremost does not have an explicit ontology. The motivation for discourse ethics in this thesis is to establish dialogue between Weak and Strong, to move the policy on mitigating climate change in a more holistic environmental direction. In paper 3 reflexive sustainable development is proposed, which is an opportunity and obligation to argue when Strong and when Weak is the appropriate approach to use. The ideal of consensus in the habermasian model applies primarily to the rational search for universal norms (van den Hove, 2006). If universal norms are to include ontological questions, consensus will probably not be reached on these matters in the discourse of paper 3. The main reason is that proponents of Weak will not be interested in taking on or discussing ontology explicitly. For instance, does nature have intrinsic value or not? This is a question which goes way beyond the content of a traditional Masters degree in neoclassical economics, as well as in most doctoral theses in the field of neoclassical economics. Most students and professionals of neoclassical economics do not discuss these issues, and see them as irrelevant for their profession. For this reason they will be reluctant to discuss these matters. If they do get into discussions about ontology, it is likely that they will still consider ontology irrelevant to their profession. They will claim ontological discussions belong to philosophy and that they do not have any consequences for neoclassical economics nor for their policy advice. Let us look back at one of the 4 premises for a discourse mentioned in Chapter 6 above: “3. Sincerity: Everyone at any time has the possibility to introduce their own proposals which is to represent their beliefs.” Ontological beliefs are not reflected upon by proponents of neoclassical economics.

### **6.1.3 From consensus to compromises**

If Weak and Strong meet in a discourse, consensus can be a goal, but one should be prepared that this might well not be the outcome. Paper 3 describes this in more detail,

and argues to keep cooperating beyond consensus, to consider compromises. The cooperation is still to be guided by discourse ethics, but the goal is not as ambitious as consensus. There are several arguments for cooperating beyond consensus, as is also argued in paper 3:

- The overall situation today is a situation of Weak. A compromise between Weak and Strong will move the current situation in the direction of Strong.
- It is an opportunity to influence proponents of Weak.
- There is already a commitment of communication in theories of Strong.
- The emergence of participatory processes in policy making.

The knowledge society has contributed to making participatory approaches a common tool. “Participatory approaches have been increasingly advocated as effective decision-making processes to address complex environment and sustainable development issues.”(van den Hove, 2006, p. 11) When proponents of Weak and Strong are invited to contribute in a participatory process, there will be a conclusion at the end of the process. If the consensus moves just a step along the road, the process continues until one final recommendation is made, although it may take form in majority- versus minority- recommendation. The argument for compromising is, to stay in the process beyond consensus, to influence and comment upon the final recommendation. In this also lies a possibility for learning, and the emergence of potential original solutions (van den Hove, 2006).

#### **6.1.4 Advocatory representation of Nature**

The 3<sup>rd</sup> and last limitation on a discourse between Weak and Strong which I will enter into concerns advocacy. In Strong, sustaining nature is an autonomous goal. In a discourse including proponents of Strong, nature needs advocacy. How do we know that the advocates represent nature’s interests? An illustration here is the case of carbon capture and storage (CCS), analysed in paper 1. Here two different environmental NGO’s give two different policy recommendations with regard to CCS

for enhancing oil recovery. One NGO claims CCS for enhancing oil recovery is an important and significant contribution to mitigating climate change. The other claims this will contribute to increasing greenhouse gases. (Nilsen, 2008, p. 119) This problem of advocates giving opposite conclusions for the same “client” should be discussed openly in the discourse. The advocates must bring forward their methodology and perspectives, and these issues need to be studied critically. One premise for advocates of nature must be the ability to demonstrate understanding of the complexity of nature. That making one piece of nature sustainable might aggravate other environmental problems. The existence of advocates of nature with opposing standpoints must be at the forefront when establishing a practical discourse, as well as when presenting the results of a discourse. If the result of a discourse is consensus, this consensus is still based on advocacy of nature.

I compare this problem of representatives of nature to what the Norwegian philosopher Skirbekk says in a critique on discourse, where the case is human foetus. “My main point is this: in these cases we have less participatory self-determination and more ‘paternalistic’ agreements or decisions based on discursive interpretations of available and relevant knowledge. In short, the discursive element remains untouched, but the participatory and consensual aspects are weakened by the introduction of these forms of advocacy representation.”(Skirbekk, 1997, p. 68) The case of paternalistic agreement is transferable to the family-model and the child-parent relation of paper 3.



## 7. Carbon capture and storage in the light of circulation economics (Paper 1) <sup>24</sup>

### 7.0 Abstract

**Purpose** – The paper’s purpose is to highlight conflicting interests between combating climate change and the technique of carbon capture and storage (CCS) within the Norwegian petroleum industry.

**Design/methodology/approach** – This paper is written in a conceptual form. The theoretical starting point is that strong sustainable development is necessary to combat climate change. The practical example is state-of-the-art of CCS, and whether this contributes to combat climate change or not.

**Findings** – This paper finds using circulation economics adds essential environmental preconditions to the technique of CCS. First, the global environmental gain must not be outnumbered through an increase in production volume. Second, if the technique does not contribute to strong sustainable development then the producers must instead limit the extraction of petroleum.

**Research limitations/implications** – The figures in this paper build upon the current knowledge within this research area. Extensive research is taking place, and may change the figures.

**Practical implications** – The findings of this paper show that it is necessary to use a holistic and global theoretical approach in choosing tools to combat climate change.

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<sup>24</sup> This paper was sent to the International Journal of Social Economics in August 2007, and published in January 2008. The paper has not been revised in accordance with possible changes in figures, technology etc., occurring after August 2007. The abstract and the style of references are in accordance with the standards of the International Journal of Social Economics.

**Originality/ value** – The paper uses a relatively new economic theoretical approach to highlight environmental aspects regarding a technique of capturing carbon, which is currently being developed to combat climate change.

**Keywords** Climate change, Sustainability, Norwegian Petroleum Industry

**Paper type** Conceptual paper

## 7.1 Introduction

The last report of the Intergovernmental Panel on Climate Change (2007a, p. 10) states: “The observed widespread warming of the atmosphere and ocean, together with ice mass loss, support the conclusion that it is *extremely unlikely* that global climate change of the past fifty years can be explained without external forcing, and *very likely* that it is not due to known natural causes alone.”<sup>25</sup> Numerous other reports have also established a connection between man-made emissions of greenhouse gases (GHG) and climate change, and the serious consequences we are now facing in various parts of the ecosystem, human health and human settlements (IPCC, 2001, 2007a, 2007b, 2007c). These scientific reports provide highly reassuring evidence, thus this paper will build upon that the climate change we are now facing is mainly man-made: “Carbon dioxide is the most important anthropogenic greenhouse gas (...). (...) The primary source of the increased atmospheric concentration of carbon dioxide since the pre-industrial period results from fossile fuel use, with land-use change providing another significant but smaller contribution” (IPCC, 2007a, p. 2).

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<sup>25</sup> “In this Summary for Policymakers, the following levels of confidence have been used to express expert judgments on the correctness of the underlying science: *very high confidence* at least a 9 out of 10 chance of being correct; *high confidence* about an 8 out of 10 chance of being correct.” (IPCC, 2007a)

Global environmental problems, such as climate change, have historically mainly been dealt with through international agreements. In recent years, however, a growing number of countries and regions have taken other initiatives such as regional agreements and unilateral plans in order to reduce their emissions of GHG. These initiatives have either been taken by entities not signatories to the Kyoto Protocol, or by signatories wishing to strengthen their obligations beyond what they are committed to through the Protocol. Yet, other entities prepare themselves for the period after the Protocol. The two latter groups express clearly that mitigating global warming cannot be handled through the Kyoto Protocol alone. This is due to there being too many non-signatories, not ambitious enough goals and the limited time scale of four years for the Protocol. In their wait of a new and better international agreement, many entities act unilaterally.

In this paper, I look at arguments for Norway making a unilateral initiative. The following information illustrates the motivation for this starting point. The greatest amount of man-made emissions of GHG originate in the industrialized parts of the world, whereas the problems of climate change are much more difficult to handle in poor and already hot and dry countries in the southern hemisphere. The issue of climate change adds to the problems of enormous gaps in living conditions between North and South, and therefore places a special responsibility on the wealthiest and industrialized part of the world (Ministry of the Environment, 2006, p. 21). Norway is not just one of the wealthiest countries in the world, it has indeed built this wealth on the extraction of petroleum. Last, but not least, Norway purports to be a leading country in combating climate change.

Currently, the Norwegian government is discussing the issue of unilateral initiatives, to be introduced in addition to the obligations of the Kyoto Protocol. On the agenda is, amongst other things, the development of technology to capture carbon dioxide (CO<sub>2</sub>) from industrial processes and the storing of this instead of releasing it into the atmosphere. The technique is called carbon capture and storage (CCS). Part of the plan

is to make CCS a tool in a successor to the Kyoto Protocol. There are two questions in this paper: What can circulation economics add to the premises of CCS? Does CCS in the light of circulation economics make arguments for unilateral initiatives? This paper is conceptual in its form.

Circulation economics remains for the time being a relatively unknown theoretical approach. I will therefore provide a brief description of the background and context within which this theory has emerged.

## **7.2 Circulation economics**

The theory of circulation economics originates with Ingebrigtsen and Jakobsen (Ingebrigtsen & Jakobsen, 2004, 2006, 2007). I will now give a brief description of this theory, emphasizing the factors relevant to this paper and will furthermore outline my rationale for using this theoretical approach.

Circulation economics presupposes a change from the world view and methodology of neoclassical economics, and builds upon the following four basic principles: 1) implementing circular value chains, 2) integrating economic, cultural and environmental values, 3) incorporating a communicative arena for cooperative interaction, and 4) introducing an organic world view. In this paper principles 1), 2) and 4) are all highly relevant, whereas principle 3) is more peripheral. As three out of four principles are relevant, it shows the appropriateness of using circulation economics as the theoretical base. The following three subchapters look into principles 1), 2) and 4), respectively, whereas the final subchapter cast a critical glimpse at the theory in hand.

### 7.2.1 Circular Value Chains

The metaphor of circulation is used because of the many similarities with systems of circulation in nature. The traditional way and range of thinking in economics, especially at enterprise level, envisages a linear chain of value from production to distribution to consumption. Little focus is brought to bear on what comes before and after this line: input and output. In circulation economics the input, use of natural resources and the output, and the waste, must stay within the limits of the ecosystem. With petroleum being the case in this paper, GHG is the main output or waste in addition to other and also more locally polluting gases and substances. The easiest and safest way of reducing an output-problem is to reduce the input.

“Waste by definition has no value” (Georgescu-Roegen, 1967, p. 65). But when we establish systems for handling waste and use waste as input in new production processes, waste changes character. From being solely a problem, waste becomes a residual-product and a potential resource for new production. To change the linear chain of value into a model of circulation economics, some of the output has to be redistributed towards new production – as illustrated in Figure 7.1.

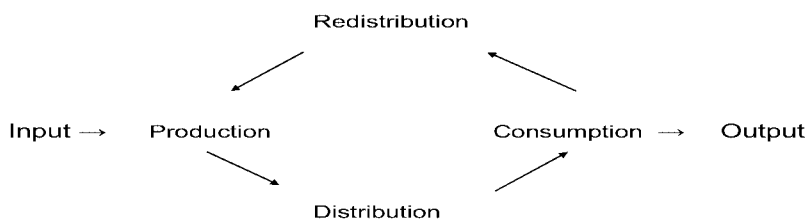


Figure 7.1 The simple model of circulation economics

A perfectly effective system of circulation in nature is water. “As far as we know there is a fixed amount of water on the planet that constantly cycles from the atmosphere to the surface and back to the atmosphere” (Savory & Butterfield, 1999). But not every remaining from human consumption can be recycled, as materials wear out - as shown by the output in Figure 7.1 above. The amount of output is a sign of the effectiveness of the use of resources.

Circulation economics builds on the laws of thermodynamics, first expressed in 1865 by professor in physics Rudolf Clausius. Thermodynamics contains two main laws; 1) the amount of energy in the universe is constant, and 2) the entropy of an isolated physical system will increase. The word entropy is put together from “energy” and the Greek word for transformation “tropos” (Ingebrigtsen & Jakobsen, 2006, p. 582). When energy is transformed from one physical state to another, through for instance combustion, the entropy increases. An increase in entropy is a decrease in available, or free, energy. This process is irrevocable in a closed system (Daly & Farley, 2004).

The energy that is interesting for economic activity is the free energy. Free energy can only be used once, whereas materials or substance can be used and reused many times, but always by means of additional free energy. This illustrates the importance of appropriate use of free energy, and this is why circulation economics says it is better not to create waste in the first place, as recycling itself demands free energy. “Therefore, we must say that recycling only represents a reasonable partial solution” (Ingebrigtsen & Jakobsen, 2006, p. 583). However, recycling stands up as a better alternative than just leaving recyclable output as waste.

### **7.2.2 Integrating economic and environmental values**

The 2<sup>nd</sup> basic principle of circulation economics proposes integrating economic, cultural and environmental values. The sphere of cultural values is not of particular

relevance in this paper, and is therefore excluded. I thus focus on integrating economic and environmental values.

The 2<sup>nd</sup> principle concerns the definition of sustainable development, which, over the last decades, has been devoted increasing attention. The most used definition of sustainability is made by The World Commission on Environment and Development (1987, p. 43): “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Within economics several different specifications of the term sustainability have evolved. In this paper I use the terms sustainable development and sustainability as similar concepts.

The main definition of sustainable development within neoclassical economics is sustained development in which utility/consumption is non-declining over time (Perman, Ma, McGilvray, & Common, 2003, pp. 86-87). For instance, a lake is reduced or destroyed and is replaced by a pool. If the users of the lake maintain their level of utility or quality of life by swapping from the lake to a pool, then the development is sustained (Førsund & Strøm, 2000, p. 218). This is weak sustainability. The challenge is to calculate how big the compensation in capital must be for the loss of natural goods (Asheim, 1995, p. 233).

I assume in this paper that we want to reduce, as far as possible, given the changes already taken place, our impact on climate change. Then it follows that the substitution from nature to capital goods must be reduced substantially. Restrictions have to be made so that the climate is sustained at its natural level – as far as possible given the emissions already made. The IPCC’s (2007c, p. 23) most optimistic estimate regarding man-made temperature increase is 2.0-2.4 degrees Celsius. This scenario sees emissions peaking at the latest in 2015, and the reduction in global CO<sub>2</sub> in 2050 must be of an order of between 50 and 80 percent compared to year 2000. Therefore, I find weak sustainability to be insufficient in the case of climate change.

A less common, but increasingly used theoretical concept is strong sustainability. Strong sustainable development requires that the substitution between economics and nature does not decrease the sustainability of either. Both must be sustained (Tietenberg, 2006, p. 98), hence providing a pluralistic value-base. Strong sustainability is one of the foundation stones of circulation economics, as well as in other relatively new 'green' theories such as ecological economics (Costanza, 1991; Daly & Farley, 2004; Gowdy & Erickson, 2005), environmental management and corporate social responsibility (Bansal & Roth, 2000; Dillon & Fisher, 1992; Welford, 2000; Zadek, 2004). These theories are all referred to as 'green' because nature is part of their value-base.

### **7.2.3 An organic and holistic world view**

Circulation economics presupposes a change from the mechanistic and atomistic world view of neoclassical economics, towards an organic and holistic world view. The focus of this paper is holism, so the organic aspect of the world view is not discussed here.

An atomistic world view implies that the individual actor is in focus through maximizing his/her utility, and the different actors' individual preferences are not affected by the other actors' preferences (Elster, 1989). In this way actors can compete to satisfy individual preferences, without taking into account any overall results. In neoclassical economics, a state can intervene in the market to adjust the overall result. A problem arises in global issues; here the actors are states and there is no supranational institution to adjust the overall result. For each specific global problem the actors – which in the rest of this paper are states – can meet and try to make international agreements. The Kyoto Protocol is a result of such cooperation, and shows that it is possible to reach international agreement in complicated global issues. The overall result is however strained by the participating states acting autonomous to maximize their individual interests. This explains essentially the very modest result of



the Kyoto Protocol, both in terms of the total number of signatories and in total emission reduction achieved.

Holism means that actors are no longer isolated competitors, but become affected by each others' preferences. Actors meet in a communicative arena to discuss issues and try to come to an understanding of global or overall goals. When the goals are defined and the frameworks given, the individual preferences can be discussed – within the predefined global frames. In the case of climate change, a principal part of the frame is the sustainability of the global climate, in this paper expressed through strong sustainability.

A holistic world view implies to start with a global focus, not a national. I therefore find this holistic view more suitable in handling the global problem of climate change, than the atomistic world view.

#### **7.2.4 Discussion and critical light on circulation economics**

Circulation economics can be described as a middle course between neoclassical economics and more radical green theories, although leaning more to the latter. So, criticism towards circulation economics may come from two sides. Regarding the case of climate change, I have ruled out neoclassical economics' weak sustainability, mechanistic and atomistic world view as insufficient, and will therefore not consider any criticism from this angle. On the other side, I briefly use a couple of main points from the theories of ecological economics and deep ecology to exemplify differences and thereby disagreements with circulation economics.

Ecological economics is critical to the circulation of substance as a focal tool towards sustainable development because circulation requires additional use of free energy, and hence increases the entropy even more. Ecological economics is focused on reducing input and output through better technology and better priorities (Daly &

Farley, 2004). However, both ecological economics and circulation economics opt for strong sustainable development – though with a difference in focus and tools.

But there exists a possible constraint in strong sustainable development, and consequently therefore, both in circulation economics and ecological economics. In facing serious environmental problems such as climate change, rapid action is required. This might reduce the economic sustainability, at least in the short and medium term, and hence violate strong sustainability. The IPCC (2007c, p. 16) claims it is possible to reduce GHG by 50 till 80 percent within 2050, within a range of global GDP change from a 1 percent gain to a 5.5 percent decrease. The Stern-report claims it will cost around 1 percent of GDP each year to avoid the worst impacts of climate change, but “The benefits of strong and early action far outweigh the economic costs of not acting” (Stern, 2006, p. vi, Summary of Conclusions). So, we may need to reduce the global economy by a maximum of 5.5 percent. If a reduction of the economy is necessary to secure the sustainability of nature, strong sustainability is violated - and not sufficient. But it is possible that after a short or medium term of decline in GDP, an increase will return. This has been the overall pattern of economic development in modern times, and is also the conclusion of the Stern-report; “Tackling climate change is the pro-growth strategy for the longer term” (Stern, 2006, p. viii, Summary of Conclusions).

But some scientists claim we must reduce the economy substantially, and that it must stay reduced. They believe climate change is just a symptom of a larger, deeper structural problem of man’s excessive use of natural resources. It is therefore necessary for man to reduce his impact on nature – in other words to reduce economic activity. This stands forth as a main point in for instance the eco-philosophy of deep ecology, as developed by the philosopher Arne Næss (DesJardins, 2006; Næss, 1999; Sessions, 1995). Here, everything in nature is given value, both living and non-living substances, through the ethics of biocentric equality. In this non-anthropocentric theory there are two main points to be mentioned: 1) human population must decrease, and 2) humans must only satisfy vital needs. There is no doubt that the climate and

nature in general would benefit from the approach of deep ecology. The question is whether man has the ability and will to think in these lines, without a serious environmental catastrophe getting closer.

If climate change is just a symptom of a larger, deeper structural problem including the size of the economy, then strong sustainability and circulation economics is not the appropriate tool. But the case of this paper, carbon capture and storage, will not reduce the economy or otherwise contribute to solve an eventual larger deeper structural problem. CCS may provide a contribution in mitigating climate change, and the application of circulation economics as well.

### **7.3 Carbon Capture and Storage, and Enhanced Oil Recovery (EOR)**

Photosynthesis is a natural process of capturing carbon dioxide (CO<sub>2</sub>) both on land and in the sea. This is an example of very efficient circulation where waste from mammals becomes important nutrition for plants. However, in the world today far more CO<sub>2</sub> is produced than processed, which is the most important reason for the increased rate of climate change being man-made. The technique of circulation that we are looking at here is called carbon sequestration or artificial carbon capture and storage (CCS). The goal is to mitigate global warming by capturing CO<sub>2</sub> from industrial processes in which fossile fuels are the energy source, and storing the CO<sub>2</sub> instead of releasing it into the atmosphere. As combustion of coal releases more CO<sub>2</sub> than combustion of natural gas, CCS from coal offers the greater potential for environmental potential (The Norwegian Petroleum Directorate, 2005, p. 15). But as Norway is the case and coal represents a marginal industry in Norway, I will just concentrate on CCS from natural gas in this paper. And more specifically, I will study natural gas used to produce electricity in gas-power-plants. As the CCS has to be carried out at larger industrial sites, the CCS process does not apply to oil as this is primarily combusted in smaller engines mainly for transportation.

In Norway, CCS has been carried out since 1996 by the Norwegian petroleum company Statoil at the natural gas-field Sleipner. The level of CO<sub>2</sub> in the natural gas extracted from the Sleipner field is about 9 percent, which exceeds EU requirements of maximum 2, 5 percent. The excess CO<sub>2</sub> is therefore captured and stored in a so called “aquifer” named the Utsira formation. The CCS process utilizes several techniques which are currently being developed and refined to be more effective in, amongst other things, gas- and coal power plants. The technique that is most likely to be installed in Norway, and on which the following analyses are based is the so called amine-cleansing system in a combined cycle gas turbine (The Norwegian Petroleum Directorate, 2005, p. 19). The Norwegian Petroleum Directorate (2005, p. 20) stresses that this technology is available, but has not yet been taken into use by large scale gas-power plants, the case addressed in this paper.

A CCS system is highly expensive to develop, build and run, so, to make this economically viable, Norway suggests using the captured carbon for enhanced oil recovery (EOR). Today offshore petroleum companies use huge amounts of water and natural gas to generate pressure in EOR. The residue amount of oil in a mature field can amount to 40 till 60 %, and estimates of the fields in the North Sea indicate that a further 3-7 percent of this oil can be extracted by using CO<sub>2</sub>. There does exist a considerable amount of uncertainty attached to these figures though. The Norwegian NGO Bellona, argues this number could amount to as much as 8-16 percent, hence increasing the economic potential of EOR (Bellona, 2005, p. 61). The oil industry onshore in North America has used CO<sub>2</sub> to enhance oil recovery for 20 years already. The motivation has been EOR, not storage; so how safe storage proves, is not well known (Buch, 2004). In the IPCC’s Special Report on CCS (2005, p. 13), it says “While there is limited experience with geological storage, closely related industrial experience and scientific knowledge could serve as a basis for appropriate risk management, including remediation.”

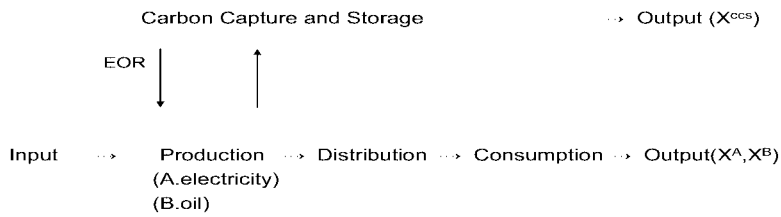


Figure 7.2. Alternative outputs of CO<sub>2</sub>.

Consider Figure 7.2 above. Input is extraction of natural gas. The A in brackets tells what can be produced following the horizontal production line at the bottom. The B in brackets tells us what can be produced after a loop via CCS. The output ( $X^A$ ,  $X^B$ ,  $X^{CCS}$ ) are the emissions that are not captured, but released into the atmosphere. In the CCS process we are trying to capture the CO<sub>2</sub>, and hence I define all the outputs  $X^A$ ,  $X^B$ ,  $X^{CCS}$  as only CO<sub>2</sub>. Other gases are also emitted as output, but the CO<sub>2</sub> from combustion of fossil fuels provides the main contribution to climate change.

Let us see what we can say about the size of the output in Figure 7.2. Following the arrows at the bottom from the input, via production of A. electricity, firstly, to distribution and consumption provides a positive output level, which we call  $X^A$ .  $X^A$  is accumulated through the horizontal line at the bottom of the figure, with the major part of  $X^A$  coming from the production part.

Moving on, we can again start off with the input and use the natural gas in a gas power plant with CCS developed and installed. In the figure, we make the move to carbon capture and storage. Moving to the output in this upper level, we call the level of output  $X^{CCS}$ . Today's CCS technology is not 100 percent effective, also due to cost-benefit considerations, but rapid developments are being made. According to IPCC

(2001), 85-95 percent of the CO<sub>2</sub> generated in power plants is captured, The Norwegian Water Resources and Energy Directorate (2005, p. 20) claim this number is on average 86 percent, which is the number I will use, then  $X^{ccs} = 0,14 X^A$ . But the efficiency in a gas-power plant with CCS is lower than one without CCS. We need more natural gas to produce the same amount of electricity. According to The Norwegian Water Resources and Energy Directorate (2005, p. 11) this figure is 20 percent, whereas The Norwegian Petroleum Directorate (2005, p. 15) estimates from 15-20 percent. I calculate an average of 20 percent and 17.5 percent, which yields 19 percent. So, 19 percent more natural gas is needed to produce the same amount of electricity in a gas-power plant without CCS. The total emission of CO<sub>2</sub> in CCS is:  $X^{ccs} = 0.14 X^A (1 + 0.19)$  which yields  $X^{ccs} = 0.17 X^A$ . Thence CCS emits 17 percent of the CO<sub>2</sub> emitted in a gas-power plant without CCS.

Returning to Figure 7.2, we follow the arrow EOR downwards. The extra oil that is extracted is unlikely to be put through a CCS-process. This is due to the fact that oil more typically is distributed and sold in small units. The extra oil is therefore produced (Figure 7.2: B. oil), transported and consumed, and this output is  $X^B$ .  $X^B$  is also accumulated along the horizontal line at the bottom in Figure 7.2, but this time the major part of  $X^B$  comes from the consumption-part of the linear chain in question.

There are differences in assumptions and calculations as to how much oil is recovered by one ton of CO<sub>2</sub>. Aaheim (2005) claims the standard level is 225 kg oil per ton CO<sub>2</sub> injected, which yields 0,8 tons of emissions of CO<sub>2</sub> when combusted. This will provide a net gain of 20 percent reductions in CO<sub>2</sub>. The Norwegian Water Resources and Energy Directorate (2005) estimates that the net gain is approximately zero; one ton injected CO<sub>2</sub> yields 2, 5 barrels enhanced oil, which when combusted gives approximately one ton CO<sub>2</sub>. These last figures gives  $X^B = (X^A + X^{ccs})$  or  $X^B = (X^A + 0.17 X^A)$  which yields  $X^B = 1.17 X^A$  after one iteration of CCS.

I assume that the CO<sub>2</sub> from the CCS is separated from the extra oil after the process of EOR. If this CO<sub>2</sub> is re-injected, it recovers even more oil (The Norwegian Water Resources and Energy Directorate, 2005, p. 10). The NGO “Bellona” estimates a CO<sub>2</sub> recycling rate of 30 percent (2005, p. 61), and uses this figure as information for increased income-potential. Another NGO, “The future in our hands” (Hille, 2006, p. 2) uses this figure of 30 % recycling, and calculates that one unit CO<sub>2</sub> captured from a gas-power plant will through EOR increase the final emission of CO<sub>2</sub> by 80 percent. Then ( $X^B = 1.8 X^A + 0.17 X^A$ ), or  $X^B = 1.97 X^A$ . Hille claims that this is in fact as polluting as an effective coal-power plant without CCS (2006, p. 3).

The two NGOs’ mentioned here both occupy central positions in the Norwegian political and societal debate, but have taken quite opposite positions regarding EOR. Bellona, and other supporters of EOR as the Norwegian state, use the potential profit from the extra oil extracted as a justification, as this profit goes to financing the use of CCS on a larger scale. The Norwegian state owns 70.9 percent of Statoil. The question can be raised as to why CCS needs to be financed by EOR, as the Norwegian state possesses other financial alternatives. But this article focuses firmly on the direct environmental effect of EOR on the climate. A further justification of this choice is the recognition that increased efficiency and cleaner production of fossile fuels in Norway has not lead to a decrease in GHG in this industry. The technological achievements have led to a decrease in GHG per produced unit of energy, but have been outrun by an increase in activity and production (The Norwegian Ministry of Petroleum and Energy, 2007).

Summing up, the output after EOR is 17 percent higher – after one iteration – than producing the same amount of electricity without capturing carbon. Multiple injections of CO<sub>2</sub> increase this number to 97 percent, according to Hille (2006). The process in which the output is just stored emits the lowest amount of CO<sub>2</sub> into the atmosphere: 17 percent compared to the same amount of energy produced in a gas-power plant without CCS – that is assumed the storage used is safe.

A possible use of fossil fuels as energy required for doing CCS and EOR is not included in either of these figures. The IPCC (2001) says the usage of energy increased by CCS equals a 5 percent increase in emissions of CO<sub>2</sub> per kWh of produced power. The possibility of using other sources of energy for the CCS process is part of the extensive R&D currently undertaken in this field.

## **7.4 CCS and EOR in circulation economics**

In this last chapter I summarize carbon capture and storage (CCS) and enhanced oil recovery (EOR) in light of the three principles of circulation economics which I looked into in chapter 2; circular value chains, integrating economic and environmental values, and a holistic world view. But firstly, if CCS is to become a tool in combating climate change, it needs to be incorporated into an international environmental agreement, a successor to the Kyoto Protocol. I will therefore first briefly mention the key concepts in the Kyoto Protocol which can be related to CCS.

### **7.4.1 The Kyoto Protocol in relation to CCS**

The signatories to the Kyoto Protocol have agreed to a 5 percent reduction in GHG emissions during the period 2008 – 2012, compared to 1990 levels. A fixed number of emission quotas have been issued to the signatories to ensure this reduction, and from 2008, these quotas can be traded mutually to fit the amount and development of each country's level of emissions. In addition, the mechanisms called Joint Implementation and Green Development Mechanism encourages industrialized countries to implement projects in respectively other signatory or non-signatory countries that reduce emissions or absorb carbon through forestation or reforestation activities. The industrialized countries are compensated through the use of domestic quotas



corresponding the reduction in emissions abroad (United Nations, 1998). To include CCS in an international agreement successor to the Kyoto Protocol, the technique of CCS has to diffuse – in order to make it a substantial tool. This can be done through the existing mechanisms of Joint Implementation and Green Development Mechanism. Furthermore, an emission country can instead of buying quotas, or using the Joint Implementation or Green Development Mechanism, pay a receiver country to store the captured carbon. The receiver country can either just store the CO<sub>2</sub> or use it for EOR. There are complicated international legal aspects to be solved in this issue, which are not covered as a theme in this article.

#### **7.4.2 Circular value chains**

CO<sub>2</sub> was mainly deemed to be waste without value, until it received a value through the Kyoto Protocol. This value integrated CO<sub>2</sub> into the economic system, and makes it possible to further integrate it into a system of CCS. In light of circulation economics' first principle of circular value chains, it is good environmental policy not to leave the output as waste but to integrate it into the economic system for potential new production and hence more effective use of resources. In CCS there are two value chains, either CCS for storing or CCS for EOR, although only the latter results into new production.

In CCS for storage purposes, the crucial point is whether the storage will keep the CO<sub>2</sub> put and not cause damage locally or globally. A massive amount of research is going on to ensure the safety of storing CO<sub>2</sub>. Still, a general recommendation in circulation economics is that, if we do not know the long term effect of storing the CO<sub>2</sub>, the best environmental solution to the climate problem is to move back to the principal idea of circulation economics; the exploitation of natural resources and the output, must stay within the limits of the ecosystem. This means reducing the extraction of petroleum. If

the storage can be safely conducted, then circulation economics supports this idea. However, today's CCS technology emits 17 percent of the CO<sub>2</sub>. A massive increase in production of energy in power plants with CCS, of approximately 6 times, will outnumber the environmental effect. In such a case circulation economics recommends that it is better not to extract petroleum in the first place.

In CCS for EOR, the extra oil extracted will not be run through a process of CCS. Combusting the extra oil will reduce the environmental effect of CCS to at least 17 percent below the same amount of natural gas used to produce power without CCS. This figure will decrease further depending on how many multiple injections the same unit of CO<sub>2</sub> can do. Circulation economics does not recommend this circular value chain. CO<sub>2</sub> is effectively used in new production, but the new product harms the climate more than we gain through capturing CO<sub>2</sub>.

The first research question of this paper was: *What can circulation economics add to the premises of CCS?* The answers from the principle of circular value chains are that storing must be safe, the environmental gain must not be outnumbered by an increase in production volume, and CCS must not be used to enhance the amount of fossile fuels available through EOR.

### **7.4.3 Integrating economic and environmental values**

Circulation economics builds on the principle of strong sustainability; the substitution between economics and nature must not decrease the sustainability of either. CCS can contribute to mitigating climate change, as discussed above, through safe storage and at the same time a production volume of energy that does not outnumber the environmental gain of CCS. If these preconditions do not exist, circulation economics recommends limiting and stopping the extraction of petroleum. This will reduce the

growth of the Norwegian economy, and possibly other countries too. It is difficult to calculate whether the economic sustainability in Norway and other countries will decrease, and if so; by how much and for how long. The concept of strong sustainability does not provide an answer to this dilemma; choosing between economic and environmental sustainability. In the case of climate change – I argue in choosing to sustain the climate: A decrease in the economic sustainability can be recovered by man, whereas a decrease in the sustainability of the climate system cannot – it is irreversible. This is also the point made by Tiemstra (2002, p. 268), in relation to recycling in general; we must not abandon strictly environmental arguments as economic conditions change.

The first question asked in this paper was: *What can circulation economics add to the premises of CCS?* If CCS does not contribute to the second principle of circulation economics, strong sustainable development, I argue that the alternative for petroleum producers is to limit the extraction of petroleum.

#### **7.4.4 A holistic and global world view**

In a press release following the government's budget for 2007, the Norwegian Minister of Petroleum and Energy (2006), said: “The Norwegian government places great emphasis on capture and storage of CO<sub>2</sub> as a measure to reach the targets set for Norway in the Kyoto Protocol.(...) The government has ambitious goals for establishing so-called CO<sub>2</sub>-chains where CO<sub>2</sub> is captured, transported to oil fields and used to increase oil recovery”. The extra oil extracted by EOR is sold and combusted mainly abroad and hence will not burden Norway's emissions quota. Combustion of fossil fuel is the combustors responsibility only. This is an exemplification of the neoclassical economic principle of ‘polluter pays’. In producing electricity without CCS, the main share of X<sup>A</sup> in Figure 7.2 comes from the production part of the

process. In using CCS for EOR, the main share of  $X^B$  in Figure 7.2 comes from the consumption part. In using CCS for EOR, the producer ‘moves’ the main part of the pollution from the producer to the consumer. In a holistic and global perspective this is not a contribution to solving an environmental problem.

The Kyoto Protocol sets no restrictions for producers of fossile fuels, beyond adding the emissions arising from the production to that country’s total emissions. Even the GHG from transportation is exempted from the Kyoto Protocol, if the transport is done by international shipping. Since the Protocol does not set any special restrictions on production, no special benefit is given in the Protocol if a producer chooses to reduce the production. This is not a global environmental argument though for not limiting the production, but it does show, on the other hand, the limitations of the existing Protocol – and moreover the limitations of the prevailing atomistic economic regime of today on which the Protocol builds. The Norwegian government is now discussing implementing unilateral initiatives, in addition to the Protocol. Norway can choose to make the producer responsible through limiting the amount of oil available through not carrying out EOR. Or taking this even further, limit the extraction of petroleum in general, not just in the CCS- process.

The second research question of this paper was: *Does CCS in the light of circulation economics make arguments for unilateral initiatives?* The answer to this second question is yes.

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## **8. Overlapping consensus versus discourse in climate change policy. The case of Norway's Sovereign Wealth Fund (Paper 2)**

### **8.0 Abstract**

I have been motivated to write this paper by noticing the increasing gap between emission of greenhouse gases and effective mitigation policies. Science now calls for every tool to be considered in order for radical changes to mitigate the situation more effectively. This paper considers Norway's huge sovereign wealth fund which, although withdrawing investment from firms causing severe environmental damage, does not categorize climate change as 'severe environmental damage'. The main reason is a basis of overlapping consensus, which also hinders argumentation for this practice.

Overlapping consensus is part of the broader theory "Justice as Fairness" as conceived by John Rawls. The consensus is with regard to having a socially just system. The word 'overlapping' refers to people having different reasons for supporting the system. But using overlapping consensus for investment-strategies represents an extension beyond its original intention, and moreover, removes mitigating climate change from the agenda.

Removing the basis of overlapping consensus opens up for value-based discourse, and hence towards the methodological sphere of Habermas' communicative action and discourse ethics. The immense severity of climate change demands value-based and substantial arguments from powerful sovereign wealth funds, to consider the acceptability of their practice.

**Keywords:** Climate change policy, Overlapping consensus, Discourse ethics, Sovereign Wealth Funds.



## 8.1 Introduction

Norway is the world's third largest exporter of petroleum, and the revenues received by the Norwegian state are stored in the Norwegian Government Pension Fund – Global ("The Fund"). The management of The Fund is guided by the Ethical Guidelines, which is based on the concept of overlapping consensus. The idea of an overlapping consensus, as it is understood in the Ethical Guidelines, can be traced back to the broader theory "Justice as Fairness" (Rawls & Kelly, 2001) by the American philosopher John Rawls. Overlapping consensus is about how to achieve stability within a socially just system. The consensus is regarding a system, but the consensus is 'overlapping' as it builds on people have different reasons, premises and arguments for supporting the system. The consensus is not for the same reasons, all the way down ((Nozick, 1974, p. 225) in (Rawls, 2002, p. 88)). The first research question of this paper is 1) do the Ethical Guidelines fall within the sphere of Rawls' idea of overlapping consensus?

Sovereign wealth funds<sup>26</sup> control an increasing part of the world's financial assets (Truman, 2007) and have become the largest concentration of capital ever in history. The Fund is one of the largest of such funds with an average share in the international stock market of more than 0,75 % (Ministry of Finance, 2008-2009, p. 33). The managers of these funds meet and discuss corporate governance and ethics, including the Ethical Guidelines for the Norwegian Government Pension Fund – Global (Skaalmo, 2007). Sovereign wealth funds do coordinate their corporate governance to a certain extent (Ministry of Finance, 2006-2007, 2007-2008; Rios-Morales & Brennan, 2009). As this development progresses, the funds capture more and more power in the financial and political world. The interest in the Ethical Guidelines is therefore not limited to the shareholders of The Fund, but must be seen in this broad context (Backer, 2009).

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<sup>26</sup> Common definitions are "government- controlled investment vehicles" or "special purpose investment funds or arrangements, owned by the general government" (Backer, 2009).

Although petroleum has made Norway one of the most affluent countries in the world, the down side is that the industry generates almost 3 % of global greenhouse gases. The issue of climate change adds to the problems of enormous gaps in living conditions between north and south, thus placing a special responsibility on the wealthiest and industrialised part of the world. Norway aims to become a leading country in combating climate change. In this respect the policy of The Fund with regard to climate change is of particular interest.

This paper builds upon well-substantiated evidence, primarily channelled through the Intergovernmental Panel on Climate Change, that the climate change we are now facing is mainly man-made (IPCC, 2001, 2007a, 2007d). However, the situation now looks worse than IPCC projected just two years ago. This is primarily due to the global emission path in 2000-2008, as well as new knowledge concerning cumulative effects in the ocean and on land – so called carbon cycle feedbacks (Anderson & Bows, 2008; House et al., 2008). With the current mitigation policies, it is now extremely unlikely to be able to avoid a more than 2 °C temperature rise above pre-industrial level – the expressed policy goal with regard to a new global agreement. Even a temperature rise of 4 °C demands fundamental changes in our approaches. “Ultimately, the latest scientific understanding of climate change allied with current emission trends and a commitment to ‘limiting average global temperature increases to below 4 °C above pre-industrial levels’ demands a radical reframing of both the climate change agenda, and the economic characterization of contemporary society.”(Anderson & Bows, 2008, p. 3880) In light of calls for radical changes of the current economic regime, ethical guidelines of sovereign wealth funds are potentially powerful policy initiatives. The second and last research question of this paper is 2) what is the policy effect of simply removing the basis of overlapping consensus for the Ethical Guidelines, with regard to the issue of climate change? This research question takes us on to a debate between Rawls and Habermas, which is a continuous thread in the general section of this paper.

Highlighting this issue now is also motivated by the current evaluation process concerning the Ethical Guidelines (Ministry of Finance, 2008, 2008-2009), as well as

the lack of academic and public debate concerning the role of overlapping consensus with regard to mitigating climate change.

## **8.2 The idea of overlapping consensus**

“Justice as Fairness” consists of two major components; a method for deciding on the principles of justice, and the specific principles derived from this method. The method belongs to the contract tradition of political philosophy, claiming that acceptance in some form is necessary in order for a state to execute power legitimately. Based on this requirement for acceptance, Rawls introduces principles for a just society which the inhabitants of a society will support. A main strand of thought in these principles is that all human beings’ political and civil rights must be protected, and that all people with the same ability and effort must be secured the same access to attain different positions (Føllesdal, 2002, pp. 11-12). Justice as Fairness is a theory of social justice, and overlapping consensus is about how to achieve stability within the socially just system. “If we are to live peacefully together in a modern society with many and contradictory convictions, all reasonable (‘free and similar’) persons will have to acknowledge that it is necessary to adjust their political convictions and instead build society on what achieves overlapping consensus” (Skirbekk, Gilje, Granberg, Holst, & Slaattelid, 2007, p. 291) (my translation). When this paper refers to Rawls’ theory, it refers to the relevant part of his theory concerning overlapping consensus.

### **8.2.1 Overlapping consensus on the constitutional essentials**

Rawls applied the idea of overlapping consensus to the so-called constitutional essentials. This section looks into what Rawls defined as the constitutional essentials, and why the idea of overlapping consensus is applied to these limited areas. The constitutional essentials are defined as follows: “Of course, it is too much to expect complete agreement on all political questions. The practical aim is to narrow

disagreement at least regarding the more divisive controversies, and in particular those that involve the constitutional essentials (§13.5); for what is of greatest urgency is consensus on those essentials, for example:

- (1) The Fundamental principles that specify the general structure of government and the political process; the powers of the legislature, executive, and the judiciary; the limits of majority rule; and
- (2) the equal basic rights and liberties of citizenship that legislative majorities must respect, such as the right to vote and to participate in politics, freedom of thought and of association, liberty of conscience, as well as the protection of the rule of law.” (Rawls & Kelly, 2001, p. 28)

In the citation above Rawls emphasizes that the practical aims and urgency of the matter require overlapping consensus with regard to the constitutional essentials. In Rawls’ key article “The idea of an Overlapping Consensus” (1987, p. 3) he provides a more specific description: “The first feature of a political conception of justice is that, while such a conception is, of course, a moral conception, it is a moral conception worked out for a specific kind of subject, namely, for political, social and economic institutions.”

As further explained in Section 8.4 below, the relevant constitutional essentials in the case of the Guidelines are the Norwegian Ministry of Finance and the Norwegian Central Bank, Norges Bank. The Council on Ethics makes recommendations based on the Guidelines, but it is the Ministry of Finance which makes the decision based on recommendations both from the Council on Ethics and Norges Bank. Can the Council on Ethics be part of the constitutional essentials? It was established in 2004 and both the institution as well as their mandate, the Ethical Guidelines, is up for discussion in the current evaluation process (Ministry of Finance, 2008; The Albright Group LLC & Chesterman, 2008). The constitutional essentials are to endure over time, and it is too soon to characterize the Council on Ethics as stable. More important is that the Ethical Guidelines are being changed as part of the current evaluation, as hence is not stable.

Rawls discusses a disturbance or possible incompatibility between a political conception of justice based on overlapping consensus, and what he calls a comprehensive view. Comprehensive views can be religious doctrines, or philosophical doctrines – like those of Kant and Mill. If there exists a certain looseness in the comprehensive view, the adherents can comply with certain principles – as fair terms of cooperation – sometimes even at the expense of their own interest (Rawls & Kelly, 2001, p. 191).

If adherents of a comprehensive view do not accept adjusting to overlapping consensus on constitutional essentials, they are classified as unreasonable persons with unreasonable views. Can an unreasonable implementation of the Ethical Guidelines destabilise the constitutional essentials? As we will return to in later sections, the Ethical Guidelines represent two different ethical viewpoints. The standard investment regime of Norges Bank is founded on consequentialism, and the Council on Ethics recommends exclusions based on deontological principles. Certain looseness exists in how these are practiced, as one ethical approach can be replaced by the other. An unreasonable implementation of the Ethical Guidelines will probably initiate fundamental political and philosophical discussions. However, there is still a long way to go before we can talk about constitutional essentials being destabilized. There is therefore no need to ask for an overlapping consensus regarding the Ethical Guidelines. Other values and considerations should be invoked: “The point is that if a political conception of justice covers the constitutional essentials, it is already of enormous importance even if it has little to say about many economic and social issues that legislative bodies must consider. To resolve these it is often necessary to go outside that conception and the political values its principles express, and to invoke values and considerations it does not include.” (Rawls & Kelly, 2001, p. 28)

Rawls did consider some quite limited questions, and has made reservations with respect to more radical or global interpretations of his theory (Wetlesen, 1999, p. 46). Naturally his theory does not cover all ethical and political issues we are facing. The principles are meant for the constitutional essentials as a whole, and are not necessarily

applicable to distribution between generations or countries (Føllesdal, 2002, p. 28). The issue of climate change is, however, very much about distribution between generations and countries. This issue needs to invoke other values and considerations than those represented by overlapping consensus.

### **8.2.2 Changing norms**

The Ethical Guidelines are to be rooted in the main normative characteristics that are consistent over time (Ministry of Finance, 2003, Chapter 2.1), as in Rawls' idea of overlapping consensus. Still, an outcome of the current evaluation process is that the Ministry plans to start negative screening of tobacco producers from The Fund. This change is explained by a norm development visible in Norway ratifying the WHO Framework Convention on Tobacco Control (Ministry of Finance, 2008-2009, p. 25). The WHO convention had already been negotiated at the time the Ethical Guidelines were adopted, but had not yet been ratified in Norway. This planned change in the Ethical Guidelines is in contrast to Rawls' idea of overlapping consensus where the political conception is to endure over time from one generation to the next (Rawls, 2003; Rawls & Kelly, 2001, p. 32). This paper highly welcomes such a change in the Ethical Guidelines, but it must be added, the inappropriateness of using overlapping consensus is once again illustrated.

If the case of tobacco is a guide to development of the Ethical Guidelines, emissions of greenhouse gases will not be acted upon by the Council on Ethics before an international agreement enacts this itself. Is this a reflection of a norm held by the Norwegian people? Or has the issue of firms' contributions to climate change arisen too recently to call this a norm? What is certain, is that both this possible norm, as well as the international regime must change very soon in order for the policy on mitigating climate change to become more than pure rhetoric (Anderson & Bows, 2008).

### 8.2.3 Summing up

The first research question of this paper was does the Ethical Guidelines fall within the sphere of Rawls' idea of overlapping consensus? The answer to this question is no. Given this conclusion, I move on to investigate the effect on mitigating climate change if the demand for overlapping consensus is simply removed, as stated in research question 2).

### 8.3 The discourse approach

Rawls says a goal in overlapping consensus is to take debates off the agenda: "Rather we appeal to a political conception of justice to distinguish between those questions that can be reasonably removed from the political agenda and those that cannot, all the while aiming for an overlapping consensus". (Rawls, 1987, p. 13) This implies that removing the idea of overlapping consensus will or can bring questions and discourses *onto* the political agenda. This is a central theme in the theory of communicative action, and more specifically in discourse ethics, where Habermas is the main contributor (Habermas, 1992, 2006).

Discourse ethics calls for democratic participating processes where all voices and different arguments are to be present and brought forward. This is to enable substantial discussion between opposing normative positions, also by seeking to balance power of interests in the discourse (Habermas, 1990, 2006; Rehg, 1997).

Rawls and Habermas have a common starting point in Kant's practical philosophy (Habermas, 1990; McCarthy, 1994, p. 44). Habermas states that he shares the intentions of the project "Justice as fairness" and that he does not raise objections against the project as such. But he raises objections against certain aspects of its execution (Habermas, 1995, p. 110).

Habermas describes overlapping consensus as the functional contribution that “Justice as fairness” can make to the peaceful institutionalization of social cooperation. Furthermore, this functional form carries out the norms of the already stable society. There is a widely accepted distinction between norm based actions, as opposed to ethical or value-based actions. Norm-based actions are governed by rules, and by standing in a coherent relation to the same system or society. A value or ethical action requires a valuation and ordering of the goods or questions at hand. “Whereas norms are observed in the sense of a fulfillment of generalized behavioral expectations, values or goods can be realized or acquired only by purposive action” (Habermas, 1995, p. 114).

Discourse ethics can also guide the participants to arrive at a norm. McCarthy says Kant, Rawls and Habermas are all more concerned with what is just than specifically ethical questions, and that discourse ethics would have been better named ‘discourse morality’ or ‘discourse justice’ (McCarthy, 1994, p. 46). But whatever the name chosen for the discourse, arriving at a norm obligates reconstructing the value-based arguments which justify the norm.

Removing overlapping consensus will open up for value-based discourse in the execution of the Ethical Guidelines. And more so, removal will make it very hard to execute the Ethical Guidelines without ethical or value-based arguments. Mouffe says, in a critique of Rawls’s position, that the drawer of a frontier between the legitimate and illegitimate is always a political decision, and that it should therefore always remain open to contestation (Mouffe, 2005, p. 121).

Karl-Otto Apel, a key contributor to the theory of communicative action and discourse ethics, says the globalization process so far should be considered a phenomenon of first-order globalization. We now need to move to the second-order globalization, to cope with the problematic aspects of the first-order, such as the ecological crisis and the poor people in the Third World (Apel, 2008). To initiate the move from first-order to second-order globalization, discourse ethics can provide an effective tool. “But



should it not be possible, furthermore, to formulate the procedural principles of discourse ethics as a rational frame of possible agreement about any material proposals that can be made with regard to common duties and responsibilities in our time, keeping in mind that, in a vague form, these procedural principles are already acknowledged in our thousand public dialogues and conferences?” (Apel, 2008, p. 150)

How far removing of overlapping consensus takes the Ethical Guidelines towards fulfillment of discourse ethics, is investigated in the rest of this paper.

#### **8.4 Background of the Ethical Guidelines**

The Government Pension Fund – Global (The Fund) was established in 2006 and is a continuation of the Petroleum Fund. The term “Global” refers to the capital invested in bonds and equities outside Norway. The purpose of The Fund is to facilitate government savings in order to meet the rapid rise in public pension expenditures in the coming years, and to support long-term management of petroleum revenues. The income from The Fund consists of cash flow from petroleum activities transferred from the central government budget, the return on The Fund’s capital, and the net results of financial transactions associated with petroleum activities. The net income in 2006 amounted to 384 billion NOK, and the accumulated capital in 2007 reached the sum of approximately 2 300 billion NOK. In comparison, the total Norwegian state budget for 2007 amounts to approximately 700 billion NOK.

The Ethical Guidelines are by and large built on recommendations made by the government-appointed committee headed by Professor Graver (Finansdepartementet, 2003; Ministry of Finance, 2003), both hereafter referred to as the White Paper<sup>27</sup>. The recommendations in the White Paper have “A basis of overlapping consensus”

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<sup>27</sup> The references to the English version are for information purposes only. Legal authenticity remains in the original Norwegian version (Lovdata, 2005).

(Ministry of Finance, 2003, Headline of Chapter 2.1). Graver says the possible exclusion of a firm from The Fund with reference to the Ethical Guidelines will have to be influenced by overlapping consensus. And there is no overlapping consensus among the Norwegians on excluding firms due to contributions to climate change (Graver, 2007) <sup>28</sup>. This paper concurs that this is indeed a fair assumption of the situation today. As there is no overlapping consensus on this issue, no exclusions due to contributions to climate change can be made, nor have they been made (Council on Ethics for the Government Pension Fund - Global, 2006, 2007, 2008).

The Council on Ethics was established by Royal Decree in 2004, whereas the Ethical Guidelines for The Fund were issued in December 2005<sup>29</sup>. The ethical basis of The Fund is to be promoted using the following tools: 1) the exercise of ownership rights through Norges Bank, 2) negative screening and ad hoc exclusion<sup>30</sup> recommended by the Council on Ethics. The Ministry of Finance makes the final decision, based on recommendations from Norges Bank and the Council on Ethics. This is illustrated in Figure 8.1 below.

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<sup>28</sup> This person interviewed in relation to this article has been given a draft. There were no objections to the exposure of names, or to other parts of the draft article.

<sup>29</sup> Pursuant to regulation of The Fund, former regulation concerning the Management of the Government Petroleum Fund issued on the 19<sup>th</sup> of November 2004 (Ministry of Finance, 2007).

<sup>30</sup> Consult Ministry of Finance (2008-2009), for a thorough description of these mechanisms.

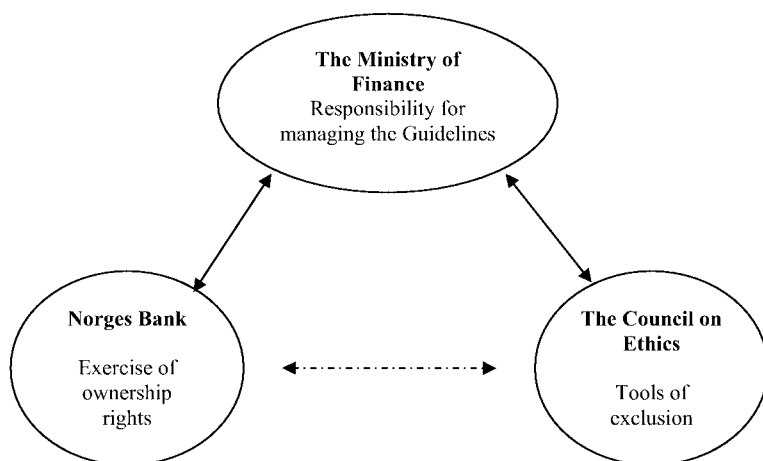


Figure 8.1: Communication links and responsibilities for implementing the Ethical Guidelines. The dotted line indicates there has been little contact between Norges Bank and the Council on Ethics.<sup>31</sup>

Norges Bank exercises the ownership rights of The Fund the overall objective being to safeguard the financial interests of the said Fund. Within this, Norges Bank has identified 3 areas of special commitment. One of these is related to climate change, and is to create openness and transparency of lobby work and encourage firms not to lobby against a new international agreement succeeding the Kyoto protocol (Ministry of Finance, 2006-2007, 2007-2008, pp. 67-68). This paper does not discuss this strategic decision and corresponding practice by Norges Bank<sup>32</sup>, but concentrates on analyzing the tools used by the Council on Ethics – also in relation to Norges Bank. The last point is important as there is to be a connection between exclusion and the exercise of ownership rights. There is an officially expressed policy view that the exclusion of companies has a role to play as a threat, in order to move an active ownership process forward (The Committee of Finance, 2006-2007, Chapter 4.1.2). In

<sup>31</sup> A more thorough description of the relationships can be found in Ministry of Finance (2006-2007, No.24 to the Storting, p.67), as well as in the external evaluation by The Albright Group and Chesterman (2008).

<sup>32</sup> Leaving these matters out does not affect the conclusions of this paper.

case of firm's contributions to climate change, there is no threat of exclusion. This weakens the power of ownership rights with regard to climate change issues.

### **8.5 Consensus on norms versus ethical consensus**

Rawls says he wants to ensure stability in society through different and opposing philosophical and moral doctrines: "Rather, we say that in a well-ordered society the political conception is affirmed by what we refer to as a reasonable overlapping consensus. By this we mean that the political conception is supported by the reasonable though opposing religious, philosophical, and moral doctrines that gain a significant body of adherents and endure over time from one generation to the next. This is, I believe, the most reasonable basis of political and social unity available to citizens of a democratic society." (Rawls & Kelly, 2001, p. 32)

In other words, Rawls does not opt for overlapping consensus based on a single ethical standpoint. This contrasts to the Ministry of Finance which introduces 'ethical consensus' as an important condition for the Council on Ethics: "Ethical consensus is of particular importance in relation to measures that are not based on concern for long-term financial returns." (Ministry of Finance, 2008, p. 25) The two ethical standpoints relevant to the Ethical Guidelines are consequentialism executed by Norges Bank, and deontology by the Council on Ethics. These are described by Rawls as comprehensive views and therefore unfit premises for the idea of overlapping consensus. Rawls refers to the two historical persons known as the founders of the consequentialist and deontological approaches, Mill and Kant, and describes their theories or 'liberalisms' like this: "These two liberalisms both comprehend far more than the political. Their doctrines of free institutions rest in large part on ideals and values that are not generally, or perhaps even widely, shared in a democratic society" (Rawls, 1987, p. 6).

The mechanisms for exclusion cannot be utilized before a deontological consensus exists. This is inconsistent with having a basis of overlapping consensus in which multiple ethical standpoints are a key feature.

The Ministry of Finance does not say *why* it is more important with consensus on the deontological approach, than on the consequentialist approach. The consequentialist approach has a foundation stone in utilitarianism, which is the ethical theory heavily influencing the policy norm of today: “In many ways, utilitarianism is the unofficial ethical theory of public policy in much of North America and Western Europe and, increasingly, for much global policy as well.” (DesJardins, 2006, p. 32) Utilitarianism is also part of neoclassical welfare economics which dominates economic policy across the globe (Gowdy & Erickson, 2005, p. 208). Uncritical practice of utilitarianism is part of what Apel names first-order globalisation, as mentioned above. This practice fits with another critique of overlapping consensus – the tendency to choose the least demanding norm – as it is more plausible for reaching agreement than more demanding norms (Cohen, 1993, p. 277).

Rawls defines the just and stable society as a primary good. Habermas describes this as moving away from the Kantian and deontological starting point of Rawls towards a utilitarian position. “I fear that Rawls makes concessions to opposed philosophical positions which impair the cogency of his own project.” (Habermas, 1995, p. 110) The example in this section is a good illustration of Habermas’ fear, although using overlapping consensus on the Ethical Guidelines goes beyond the intentions of Rawls.

## **8.6 The single firm position**

The Ethical Guidelines says exclusion is to be used when there is an unacceptable risk that The Fund may contribute to unethical acts or omissions, such as violations of fundamental humanitarian principles, serious violations of human rights, gross corruption or severe environmental damage (Ministry of Finance, 2007, Article 1).

With regard to not defining climate change as severe environmental damage, the Council says: “It is beyond the mandate of the Council on Ethics to have an opinion on climate-political issues in general. The Council’s assessment will always be linked to single firms” (Secretariat to the Council on Ethics, 2007b) (my translation). This single firm argument implies that all aggregated environmental problems not already dealt with in international agreements are left out. How is this justified? It is impossible to detect the official argumentation for this standpoint. The Council refers to attachments in the White Paper (Council on Ethics for the Government Pension Fund - Global, Chapter 2.3 - 2.4) (Finansdepartementet, 2003, p. 167), but the attachments do not form an official part of the White Paper (Graver, 2007).<sup>33</sup> The Council does not want to be interviewed regarding climate related political issues (Secretariat to the Council on Ethics, 2007a, 2007b).

Simply removing the basis of overlapping consensus takes us to the single-firm barrier, with regard to exclusion. But removing overlapping consensus will mean pressure mounting for an argument for this barrier. The single firm barrier illustrates why overlapping consensus is also called the “method of avoidance” (Pedersen, 2007, p. 212), overlapping consensus lets us avoid value-based discourses.

### **8.7 Limitations with regard to discourse ethics**

Simply removing overlapping consensus as a base from the Ethical Guidelines does not automatically fulfill the requirements of discourse ethics. The requirements can be summarized as the following principles; inclusion, sincerity, reciprocity and publicity (García- Marzá, 2008, p. 128; Ingebrigtsen & Jakobsen, 2007). How do these principles work in a value-based regime for the Ethical Guidelines?

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<sup>33</sup> In the Revised National budget (Finansdepartementet, 2003-2004), Chapter 4.2.1.4, issues related to climate change discussed in the attachments of the White Paper is also referred to as the opinion of the Graver - committee.

The principle of inclusion says all affected parties must take part in the dialogue. The debates within Norges Bank and the Council on Ethics are closed for each other. Norges Bank has expressed its reservations against exclusion, or disinvestment (Ministry of Finance, 2008-2009; Norges Bank, 2008), and first and foremost operates to ensure that a reasonable portion of the country's petroleum wealth benefits future generations through a consequentialist approach. In many cases, this stands in contrast to the goal of the Council on Ethics, where the investments are not to constitute an unacceptable risk that The Fund may contribute to unethical acts or omissions such as, amongst other, severe environmental damage. In the present regime, the Ministry of Finance makes the final decision. By removing overlapping consensus, the inputs to the Ministry are value-based. But the inputs are brought in from two separate discourses – not communicating with each other. The two separate discourses will probably often yield different outcome, given their opposing ethical positions. This is not how the intention of the principle of inclusion is visualized working. Consensus at the level of the Ministry is probably easier to reach. Habermas himself has recognized the negotiating and compromise dimension in every agreement (Regh, 1997). This not to mention the many critiques of the goal of consensus in general, in discourse ethics (Mouffe, 2005; van den Hove, 2006).

Another obstacle to discourse ethics is the power imbalance in favor of Norges Bank. The principle of reciprocity says, amongst other things, to assure conditions for absolute equality of opportunity. The principle of publicity says all interests must be considered equally and open to revision through argument. To fulfill the principles of reciprocity and publicity, the priority of consequentialism before deontology must be changed. This would mean radical reframing of the investment regime used by Norges Bank.

To suggest discourse ethics as a confined and well-working alternative to overlapping consensus would imply a much broader analysis than this paper offers, including considering organizational and institutional changes. Still, simply removing

overlapping consensus opens up for substantial and value-based arguments, which is a first and big step towards discourse ethics.

## **8.8 Summing up**

The answer to the first research question is that the Ethical Guidelines do not fall within the sphere of Rawls' idea of overlapping consensus. "The primary role of the idea of overlapping consensus is to solve the stability problem" (Freeman, 2007, p. 366). The formal analysis shows that the Ethical Guidelines is not part of the constitutional essentials. Especially important here is that Rawls called for invoking other values than those of overlapping consensus for matters lying outside the sphere of overlapping consensus. It is hard to think of other issues being more relevant now for addressing value questions, than mitigating climate change effectively. Rawls said overlapping consensus is not equal to a *modus vivendi*; any acceptance is not good enough, it must build on the right reasons (Pedersen, 2007, p. 210). In the case of this powerful sovereign wealth fund, it is impossible to find the reasons justifying the hitherto lax practice with regard to mitigating climate change.

The second research question is 2) what is the effect of simply removing the basis of overlapping consensus for the Ethical Guidelines, with regard to the issue of mitigating climate change. The point made by Habermas is that removing overlapping consensus can enable substantial ethical discussions and ranging of values. Such a discourse would have to make value-based arguments for at least three issues raised here; 1) No threat in the exercise of ownership rights of The Fund with regard to the prioritized area of climate change, which is a breach with expressed policy intentions. 2) The direct firm position which per definition exempts all aggregated environmental problems not already dealt with in international agreements. 3) Why deontological consensus before exclusion is more important than consensus in Norges Bank's approach.



Will value-based arguments move the execution of the Ethical Guidelines towards providing a more effective tool in mitigating climate change? Discourse ethics offers a recipe for the procedure, it is a procedural ethics ((Habermas, 1999) cited in (García-Marzá, 2008)), but does not give any a priori answers. Pursuing Habermas' approach, this is also the intention of this paper which calls to discuss and reason the practice of the Ethical Guidelines with regard to climate change by using substantial and value-based arguments. Not least because the use of overlapping consensus, today blocking such a reason, is used over and above its intentions. This paper follows many similar calls for ethical discussions in complex environmental issues, not to be concealed and embodied but brought into the foreground (Sarewitz, 2004, p. 399; Söderbaum, 2009).

The rapidly increasing severity of climate change requires all instruments to be considered to ensure radical change towards more effective mitigation policy. The vast and increasing world power of sovereign wealth funds calls for substantial and value-based arguments concerning why they should, or should not be exempted.

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## **9. The joint discourse ‘Reflexive Sustainable Development’ – From Weak towards Strong Sustainable Development (Paper 3)**

### **9.0 Abstract**

The purpose of this paper is to contribute towards moving the predominant situation of weak sustainable development (WSD) in the direction of strong sustainable development (SSD). More people – academics, politicians, bureaucrats and laymen alike – need to recognize SSD as an alternative to WSD. A joint discourse of WSD and SSD is suggested, called reflexive sustainable development. Here, advocates of WSD and SSD must argue for each specific case why their solution is better. This will expose, amongst other things, the ethical foundations which form part of resulting policy advice. Reflexive sustainable development is to be framed in discourse ethics, thereby remedying the power imbalance and allowing for substantial discussion. Reflexive sustainable development builds on a common theoretical base but will not lead to consensus in all matters. A family metaphor is introduced to inspire a discourse of both consensus and compromise.

**Keywords:** sustainable development; climate change; reflexive approach; discourse; family metaphor.

### **9.1 Introduction**

Academics, politicians, bureaucrats, NGOs and journalists are continually making statements and giving opinions on which actions and policies will take us in a sustainable direction. But these statements are seldom contrasted against the backdrop of different or competing definitions of sustainable development. As a result, value foundations, implicit ontologies and paradigms are not challenged. This paper uses a reflexive approach to focus on the two most common definitions within economics, namely weak and strong sustainable development (WSD and SSD). The objective is to

challenge the hegemonic position of WSD, through substantial discussions. This will bring to the forefront differences between WSD and SSD, but also their common features. A joint discourse called reflexive sustainable development is proposed, where the appropriateness of either WSD or SSD must be argued for and discussed with reference to each individual case in hand.

The paper is conceptual, but the increasingly severe situation of man-made climate change (Anderson & Bows, 2008; House et al., 2008) is used as an example of a current issue where WSD and SSD are part of the debate. The last section offers some illustrations from official Norwegian documents on climate policy – related to both WSD and SSD. These examples build upon and acknowledge the scientific reports, mainly drawn from The Intergovernmental Panel on Climate Change, which provide highly reassuring evidence that the climate change we are now facing is mainly man-made (IPCC, 2001, 2007a, 2007b, 2007d). The motivation of this paper is to provide a constructive input into discussions on mitigating climate change, as well as a more general contribution on cooperation between conflicting schools of thought.

## **9.2 Combining different perspectives**

The two definitions of sustainable development in this paper belong to different schools of thought. WSD is part of neo-classical economics (Neumayer, 2003; Perman, Ma, McGilvray, & Common, 2003), whereas SSD is a premise in several more recently developed theories such as ecological economics (Costanza, 1991; Daly & Farley, 2004; Gowdy & Erickson, 2005), circulation economics (Ingebrigtsen & Jakobsen, 2006), and more radical versions of environmental management and corporate social responsibility (Bansal & Roth, 2000; Dillon & Fisher, 1992; Welford, 2000; Zadek, 2004).

The term ‘sustainable development’ became well-known through the report ‘Our Common Future’ by the Brundtland Commission. Their definition of the term is



probably better known than the report itself: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (The World Commission on Environment and Development, 1987, p. 43). This is also an articulation of the goal of WSD; human utility is to be non-declining over time<sup>34</sup>. SSD, on the other hand, states that the economy and nature are both to be sustained as they are complementary (Daly, 1999, p. 56). The interests of humans are not to have an overriding priority over the interests of nature.

It is fair to say that the overall situation in the world today, at least in the Western societies, is a situation based on policy recommendations in line with WSD and neoclassical economics. The focus is on maximising the utility of human beings (DesJardins, 2006; Söderbaum, 2009, p. 77). The case of this paper, climate change, is a good illustration. Greenhouse gases continue to rise as a result of prioritizing human utility, despite decades of international attention to the non-reversible effects on nature. And it is getting more and more unlikely that a new international climate agreement will rise to face the increasingly severe situation (Anderson & Bows, 2008, p. 18).

This paper builds on a belief that human utility should not be the only goal, that WSD is therefore insufficient to mitigate climate change and that SSD is a better goal to strive for than a continuous situation of WSD. In the case of climate change it means that the utility or well-being of humans is not to be attained at the cost of the sustainability of nature<sup>35</sup>. There are examples of subsets in the economy similar to the ideas of SSD, such as organic food production. And, as illustrated in the last section of this paper, Norwegian policy on climate change is officially described by using both WSD and SSD. But, in practice, the Norwegian policy is predominantly WSD, a fact which is demonstrated through the continuous rise in greenhouse gases and the

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<sup>34</sup> Both WSD and SSD are defined more thoroughly in later sections.

<sup>35</sup> This paper has a general global approach and does not differentiate between needs and wants. If differentiating between needs and wants, it is consistent with SSD to recommend short term solutions prioritizing human *needs* at the expense of nature – primarily in developing countries. This implies that human *wants*, based on the use of natural resources, must be reduced accordingly elsewhere.

reliance on the non-satisfactory international regime of the Kyoto Protocol (Nilsen, 2008).

How do we move from WSD towards SSD? One pathway is to work within the sphere of SSD, pursuing or contributing to this school of thought. Through this work, SSD will hopefully become more visible both within academia and within practical politics. Another pathway is to engage in scientific and public discourses with proponents of WSD, such as the joint discourse proposed in this paper. Why, when WSD and SSD are perceived as competing ways of understanding sustainable development (Kallio, Nordberg, & Ahonen, 2007, p. 42)? Communicating and arguing with the majority of academics, politicians and bureaucrats working within the sphere of WSD is an opportunity to engage and influence. To challenge the current predominance of WSD with the ideas and goals of SSD requires that more people – researchers, politicians, bureaucrats, journalists, and people in the street – know of and understand SSD. It requires that more people recognize that there is an alternative to WSD, and that the situation of WSD can be moved in a direction towards SSD. “Audiences outside academia can influence the reputation of the individual researcher, as most ecological economists consider it important to actually influence the political agenda.” (Røpke, 2005, p. 287)

This paper does not contribute to building an exclusive or delimited regime of ecological economics or of SSD, nor does it alienate neoclassical economics. “Actually, a general critique of neoclassical economics is sometimes seen as outright counterproductive, because it tends to isolate ecological economics as a marginalized sect and to scare away both the influential economists and the large number of potential members who could fill the ranks of the society.” (Røpke, 2005, p. 281) This approach is based on the belief that rational arguments have a strong persuasive power. To influence advocates of WSD, proponents of SSD also need to understand how advocates of WSD argue. Hence there is the possibility that proponents of SSD may be influenced by WSD. Mutual understanding is a key ingredient for successful interdisciplinary collaboration, more specifically understanding the ontological,

epistemological and methodological orientations of colleagues (Castán Broto, Gislason, & Ehlers, 2009, In press, p. 9).

The last but by no means the least reason to open the way for discussions with WSD is that there is already a commitment to communication contained within some theories of SSD, such as circulation economics (Ingebrigtsen & Jakobsen, 2007). Circulation economics offers a holistic alternative to mainstream economic criteria, and the third out of its four basic principles is “(3) incorporating a communicative arena for cooperative interaction” (Ingebrigtsen & Jakobsen, 2006, p. 581). This arena is to include all stakeholders within economy and nature. The most well known and principal contributor to the theory of communicative action and a democratic participating process where all voices and arguments should be present, is Jürgen Habermas (1990; Habermas, 2006). The communicative arena is an argument for communication between proponents of WSD and SSD, and a commitment to initiate such a communication.

### **9.3 Reflexive Methodology**

Reflexivity offers the possibility to be able to see what a theory can not say, or does not say. A reflexive approach – in contrast to a single framework – does not offer one privileged understanding. Solid theoretical consistency is not an ideal, and likewise, nor is expanding a theory to capture ever occurring elements. Reflexivity is an approach which enables a broader theoretical and conceptual clarification. Several theories and meta-theories can be introduced to make a methodology reflexive, and some theories are reflexive in themselves; such as theories on discourse (Alvesson & Sköldbberg, 2005). Discourse is here used as a reflexive tool to mediate between, compare and contrast WSD and SSD.

Communication between WSD and SSD is rare, and they can be defined as separate discourses: “It is obvious that the advocates of both weak and strong sustainable

development have their own hermeneutic discursive universe from which the opposing party is consciously excluded, while any opposing interpretations are rejected as invalid, non-rational and inferior.” (Kallio, Nordberg, & Ahonen, 2007, p. 45) The reflexive approach taken here is to consider WSD and SSD as separate discourses within each school of thought, and then to search for and construct a joint theoretical discourse. The joint discourse of this paper, reflexive sustainable development, is named after this reflexive approach.

#### **9.4 Paradigms constraining communication**

Neo-classical economics is often described as a paradigm as defined by Kuhn (Kuhn, 1996). Kuhn divided scientific progress into three phases; a pre-science, normal science and revolutionary science phase. Normal science is the organised, progressive, everyday work of gathering evidence and testing hypotheses. The researchers are in this phase often intolerant of data that are incompatible with the basic assumptions of the paradigm: “No part of the aim of normal science is to call forth new sorts of phenomena; indeed those that will not fit the box are often not seen at all.” (Kuhn, 1996, p. 24) Kuhn says that, although it may be a defect to not see those that will not fit the box, that this is, nevertheless, a necessity for scientific development. Without making a commitment of this nature to a paradigm, the detail and depth of the research would otherwise be unimaginable.

This is a description of scientific progress that fits neo-classical economics well. Seeing WSD as part of a paradigm implies that there is no obligation to justify the framework of WSD. The justification and methodological clarification of a paradigm is implicit within the paradigm. Mutual understanding among practitioners of different paradigms is not encouraged.

WSD is a good *description* of the situation in the world of today exemplified by climate change. SSD, as stated, is a *normative* goal of this paper. Moreover, lack of

communication between WSD and SSD is a good *description* of the situation today, and communication and mutual understanding are *normative* goals of this paper. No paradigmatic approach supports these normative goals, although cross-paradigm developments and mutual understanding have been discussed (Dow, 1990, p. 155; Illge & Schwarze, 2009). Neither does any paradigmatic approach support the pluralistic theoretical approach of this paper, an approach which builds on a belief that pluralism within the social sciences will persist (Gunteriusen, 1999, p. 28). The reflexive approach of this paper is to inspire communication between WSD and SSD. Neumayer (2003, p. 198) concludes in his discussion of WSD versus SSD that an analysis deliberately biased towards exploring the prospects of these two paradigms would likely lead to many insights and give rise to more hope with respect to sustainable development, than would an exploration of the limits of the two opposing paradigms.

### **9.5 Weak sustainable development**

The prevailing concept within economics is weak sustainable development. “Most, but not all, economists are weak sustainabilistists” (Perman, Ma, McGilvray, & Common, 2003, p. 91). Weak sustainable development is defined as a sustained development where utility or consumption are non-declining over time (Pezzey, 1997). Neither nature nor capital has intrinsic value, but they are instrumental in achieving the highest possible level of utility. A major challenge is to calculate how great the compensation in capital must be for the loss of natural goods (Asheim, 1995, p. 233). This is the idea behind cost-benefit analysis (CBA), a main tool in neoclassical economics (D. Pearce & Barbier, 2000; D. Pearce & Turner, 1990). “The essential theoretical foundations of CBA are: benefits are defined as increases in human well-being (utility) and costs are defined as reductions in human well-being. For a project or policy to qualify on cost-benefit grounds, its social benefits must exceed its social costs.” (D. W. Pearce, Atkinson, Mourato, & Organisation for Economic Co-operation and Development, 2006, p. 16) For instance, a lake is reduced or destroyed and is replaced by a pool. If

the users of the lake maintain their utility-level by swapping from lake to a pool, then the development is sustained (Førsund & Strøm, 2000, p. 218; Nilsen, 2008). This is illustrated in Figure 9.1 below. Utility is to be upheld whereas its constituent factors, economy and nature, are not protected by a demand that each be sustainable.

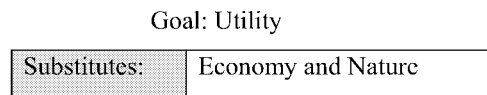


Figure 9.1: Weak sustainable development

In the economic literature there are different ways of treating restrictions on substitution. Zadek (2004, p. 120) says that in weak sustainability there are no theoretical limits to substituting one form of capital for another. This can be read as meaning that there are *practical* limits to substitution possibilities. This is supported by the following citation from Tietenberg (2006, p. 96): “How strong is the assumption of complete substitutability between physical and natural capital? Clearly it is untenable for certain categories of environmental resources.” The Brundtland report also stresses that although overriding priority is to be given to the poor, there are limits to the resource base: “The accumulation of knowledge and the development of technology can enhance the carrying capacity of the resource base. But ultimate limits there are, and sustainability requires that long before these are reached, the world must ensure equitable access to the constrained resource and reorient technological efforts to relieve the pressure.” (The World Commission on Environment and Development, 1987, p. 45) Moreover, Ison, Wall and Peake (2002, p. 113) reject infinite substitution within the regime of weak sustainability. Instead ‘very weak sustainability’ is presented: a concept which entails infinite substitution possibilities. So there is no unanimous definition of substitution possibilities. Here lies an opportunity for a common ground with SSD.

WSD is characterized by the possibility to substitute economy and nature to achieve the goal of highest possible utility for humans. This is utilitarianism. As WSD is a good description of the sustainable development of today, so is utilitarianism a good description of the prevailing ethics of today: “In many ways, utilitarianism is the unofficial ethical theory of public policy in much of North America and Western Europe and, increasingly, for much global policy as well.” (DesJardins, 2006, p. 32). There are, nevertheless, emerging exceptions: for example the Ethical Guidelines for the Norwegian States Pension Fund – Global is one opportunity to apply deontology to certain cases of investments where utilitarianism has had a strong and long-lasting monopoly (The Norwegian Ministry of Finance, 2007, 2008) Utilitarianism was defined and proposed in the 18<sup>th</sup> century by David Hume, and developed later in the 18<sup>th</sup> and 19<sup>th</sup> century by Bentham and Mill (Rachels & Rachels, 2007; Ryan, 1987). Several versions of utilitarianism have evolved but in general the theory tells us to maximize the overall good, to produce the greatest good for the greatest number.

If we are to mitigate climate change then the substitution from nature – or more specifically – from climate to capital goods must be reduced substantially. If this is to happen with WSD as a starting point a restriction must be imposed on the possibilities to substitute economy with nature, a restriction on utilitarianism.<sup>36</sup>

## **9.6 Strong sustainable development**

An increasingly used theoretical concept within economics is strong sustainable development. The economy and nature are considered to be complementary, and are both to be sustained (Daly, 1999; Holden & Linnerud, 2007; Zadek, 2004). There are therefore two autonomous goals to be achieved in SSD, as shown in Figure 9.2.

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<sup>36</sup> This is not an original point in the field of strong sustainable development. The point is elaborated upon and stated here to make the common base for the subsequent joint discourse explicit.

Autonomous goals:	Economy and Nature
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Figure 9.2: Strong sustainable development

SSD does not have one clear ethical base, but can build on or be combined with ethical positions such as deontology (Ingebrigtsen & Jakobsen, 1997, p. 78), teleological ethics or virtue ethics (Becker, 2006, p. 20) as well as non-anthropocentric theories (DesJardins, 2006). The latter group however, is predominantly reserved for what is known as ‘very strong sustainability’. In the following citation the dominant theme of ecological economics, which builds on SSD, is described in the following way: “Anthropocentric with attempts to include biocentric and ecocentric considerations” (Tacconi, 2000, p. 45).

SSD sets restrictions on the possibilities for substituting economics and nature – but the level of restriction differs between various schools, theories and authors. This includes discussing individual subsets of nature, regional subsets, and north-south perspectives (Adams, 2009, p. 145; Perman, Ma, McGilvray, & Common, 2003; Zadek, 2004). There is flexibility when it comes to restricting substitution in SSD, as in WSD. This is the theoretical common base for WSD and SSD; limiting substitution from nature to the economy. This paper does not delve into the important and complex debates on what kinds of restrictions should be placed on substitution, and why (Daly & Cobb, 1994; Neumayer, 2003; Norton, 2005; Norton & Toman, 1997).<sup>37</sup>

### 9.7 Why compromise?

A common base for limiting substitution is proposed, and this is as far as consensus between WSD and SSD is analysed in this paper. Another recent paper has detected

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<sup>37</sup> Instead, the recommendation of this paper, a reflexive sustainable development, may have an effect on future debates on restrictions. In this way the situation can move from WSD towards SSD.



other possible theoretical common features among neoclassical and ecological economists (Illge & Schwarze, 2009). So expanding the consensus to other or adjoining areas is possible, but different standpoints are not always reconcilable. This is a well-known critique of Habermas' idea and goal of consensus. Most of these critiques acknowledge that consensus form a part of cooperation or participatory processes, but claim that we must also acknowledge the existence of contradictions and plurality of standpoints (Alvesson & Sköldbberg, 2005, pp. 161-162; van den Hove, 2006). This is also articulated by Mouffe (2005, p. 30), who says a pluralist liberal democratic society does not deny the existence of conflicts, but rather provides the institutions which allow them to be expressed in an adversarial form.

Moreover, cooperation *is* often taken further despite lack of further consensus. This cooperation often takes the form of compromises. A compromise means to make a deal where both parties reduce or refrain from some of their original claims. It is an agreement reached by adjustment of conflicting or opposing claims, principles, etc., by reciprocal modification of demands – something intermediate between different things (Dictionary.com, 2008). A key reference in the field of WSD versus SSD, Neumayer (2003), says that both paradigms are non-falsifiable and that science can not unambiguously support either program.

Politicians ask researchers to participate and contribute in committees which make recommendations on certain policy areas. If the recommendations are unanimous, there is no need to elaborate compromises. But when the recommendations are not unanimous, politicians still have to make a decision. In the case of choosing between WSD and SSD, WSD has prevailed – by far. There are very few areas in society where SSD dominates and, where the economy is not given precedence over nature. “It should always be remembered that thousands and thousands of students all over the world each year are indoctrinated in the belief system of neoclassical economics. Together with the activities of trans-national corporations and neo-liberal think-tanks, the dominance of market ideology in present societies is not unexpected. Many professionals and political leaders do not know of any other economics” (Söderbaum,

2009, p. 78). From this perspective, it is in the interests of SSD to take the cooperation with WSD further, beyond the non unanimous. Not always, but more often than occurs in the paradigmatic practice of today. A compromise does not replace the scientific basis of WSD or SSD. Proponents of both WSD and SSD can still hold and speak their more radical theoretical positions whilst at the same time being part of a policy compromise. A compromise in the hegemonic world of WSD on for instance, where to restrict substitution and why, will move policy a bit further towards SSD. The only conceivable strategy for overcoming world dependence on a single power is to find ways to 'pluralize' hegemony (Mouffe, 2005, p. 118).

As already stated, this paper does not suggest any actual limits to substitution. The restrictions should be reached through stakeholders of WSD and SSD communicating in a joint discourse – practicing reflexive sustainable development on a case to case basis. “Some of the existing literature all too often does not recognise that a more disaggregated approach towards natural capital is necessary since some forms of natural capital exhibit more features that distinguish them from other forms of capital and are more prone to uncertainty and ignorance.” (Neumayer, 2003, p. 193)

### **9.8 Discourse ethics – a precondition**

Reflexive sustainable development must be framed in discourse ethics. Discourse ethics will enable substantial discussion between the opposing normative positions of WSD and SSD. Discourse ethics is part of Habermas' theory of communicative action, which calls for democratic participating processes where all voices and arguments are to be present (Habermas, 1990, 2006; Rehg, 1997). Habermas summarizes the basic intentions of discourse ethics in the Principle of Discourse (D): “Only those norms can claim to be valid that meet (or could meet) with the approval of all affected in their capacity as participants in a practical discourse.” (Rehg, 1997, p. 30) The most

important features of a practical discourse are openness, equality, sincerity and freedom from force (Ingebrigtsen & Jakobsen, 2007, pp. 254-255; Kalleberg, 1999).<sup>38</sup>

The following citation summarizes just why the traditional ethical positions of WSD and SSD, utilitarianism and deontology, are insufficient. “As an ethics based on the self-reflective insight of argumentation and on speech-act inherent preconditions, discourse ethics includes universalization in terms of general role taking and presupposes mutual recognition among the discussants, thus underlining socialization as a core element. Utilitarianism and classical deontology do not reflectively justify their own presupposition in the same sense; they remain pre-critical by presupposing or positing their basic normative position.”(Skirbekk, 1993, pp. 202-203) Discourse ethics enables substantial discussion between opposing normative positions, and also it seeks to balance the power of interests within the discourse. When the premises for discourse ethics are fulfilled and substantial discussions have taken place, reflexive sustainable development opens up for conclusions to be made in the name of utilitarianism, deontology or other ethical positions as suggested in section 6.

## **9.9 The Family metaphor**

Having argued for why and when compromises should be made, the family will now be introduced as a metaphor for cooperation. The family is the basic unit of society (United Nations, 1995, p. 109), and at the same time an institution for individual existence. Here, this is called the ‘duality of the family’. This duality consists of two often conflicting goals – the goal of the family as a unit, and the goal of the individuals. The duality of the family is a metaphor for a duality between the conflicting goals of WSD and SSD: SSD has individual or autonomous goals, as set out in figure 2, which resemble individuals in a family. The goal of WSD resembles

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<sup>38</sup> In a comprehensive book, Norton (2005) also suggests using discourse, although his approach is broader than this paper. Norton suggests public discourse, new terminology and the construction of a new language. He argues for specifying social and communal values, and not through the mediums of economic language or the language of ecology.

those of the family as a unit, being contingent on the individuals. Another parallel with the family is that decisions in a family are sometimes based on consensus, but often there must be compromises to keep the family functioning as a unit. The family as a unit can thus be used to represent the inevitable coexistence between economy and nature. The goal of WSD represents the goal of maintaining the family as a unit<sup>39</sup>.

The family metaphor is intended to inspire communication, consensus and compromise – a joint discourse. The duality in a family is that encountered in daily life; the duality between WSD and SSD is met in research and participatory processes. However, the founder of the Chicago school of economics, Frank Knight, argued that individuals as used in economic theory should in fact be regarded as shorthand for family (Nelson, 2006, p. 135). This statement builds a bridge between family life and economic theory, and is an inspiration for introducing the family metaphor.

The goals of SSD are defined as follows in terms of the family metaphor: Economy is represented through the parents, nature represented through a small child. There are some main characteristics of a child and the relation child–parents that resemble nature and nature–human. The child’s status and needs are articulated and expressed in a different manner than how the parents articulate and express themselves. The child uses a less sophisticated language or even a different type of language. The child also acts more instinctively, as opposed to the rational ideal of the grown-up world. It is therefore often difficult for the parents to understand the child’s position and needs. This can result in responses or actions by the parents which are not consistent with the child’s needs, including disregard<sup>40</sup>. The analogy with how man has not understood or not taken the needs of nature seriously should be apparent, manifested in climate change and in the lack of efforts in mitigating it. In a professional discourse, both

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<sup>39</sup> The family metaphor does not distinguish between different size of family, or gender within the family, whether several generations or friends are included, whether a tribe represents the family etc. In families with several children, they all represent nature. The metaphor is not normative with regard to members, forms or size.

<sup>40</sup> Cultural and epistemological differences as to what extent a child should be heard and have its will are not discussed.

nature and child need advocacy. This is a necessity, but represents a weakness in discourse and discourse ethics.

### **9.10 Well-being in the Family metaphor**

The goal in the family metaphor is well-being of the family and, at the same time, well-being for its individual members. 'Well-being' is a common notion in relation to family issues, as illustrated in the following citation taken from the United Nations Economic and Social Council: "Looked at within the family unit, partnership may be interpreted as the sharing of roles and responsibilities of family members and to the well-being of the family unit. This partnership implies inclusiveness of all family members without discrimination based on age, gender and ability."(United Nations, 1997, p. 2) This citation also illustrates the duality of the family, and the principles of discourse ethics as well – no discrimination between the participants.

The traditional goal within neoclassical economics of maximising utility has been increasingly contested in recent years, whereas the concept well-being has become foregrounded (Howarth, 2007; Sen, 1999). "Can and should political life in the industrialised countries, and perhaps elsewhere too, be reshaped so that well-being replaces affluence as a core aspiration of development?" (Giddens, 2009, p. 56)

Nature, in the following citation referred to as ecosystems, can also be described through the term well-being: "On most understandings of what an ecosystem is, it is a kind of thing that can be literally, not just metaphorically, healthy or unhealthy. Health is best understood as a kind of well-being; a thing's health is a matter of retaining those structures and functions that are good for it. While it is true both that what's good for an ecosystem depends on how we define the system and that how we define the system depends on our interests, these facts do not force us to the conclusion that an ecosystem has no good of its own." (McShane, 2004, p. 227)

To achieve and maintain well-being for the family unit and for its individual members demands continuous coordination of interests, needs and plans. There is a need for communication even when all family members are well. If there is to be a family unit beyond individuals, it is necessary to communicate. Over-autonomous individuals in a family are, in the longer term, in danger of losing sight of the family as a unit. The individuals become strangers to one another. In conflicts of interest between the individuals in the family, it becomes easy to lose sight of the interdependence. Again, the case of climate change is a highly relevant example. The economy has been living its own life, concentrated on enhancing the well-being of humans<sup>41</sup> – without taking into consideration either the well-being of nature or the inevitable coexistence of humans and nature.

In the case of climate change, the status of nature represented by a child is not one of well-being. Within the regime of WSD and utilitarianism, the child's well-being has been substituted for the overall goal of the family. This has not had a substantial negative effect on the well-being of the family as a unit yet<sup>42</sup>. Utilitarianism opens up for sacrificing individuals or units (persons/firms/countries/nature) for the overall good. “The theory, which first seemed so progressive and commonsensical, now seems indefensible. It seems at odds with such fundamental moral notions as justice and individual rights, and it seems unable to account for the place of backward-looking reasons in justifying conduct. It would have us abandon our ordinary lives and spoil the personal relationships that mean everything to us” (Rachels & Rachels, 2007). In the family metaphor this last citation is to the point. This is an illustration of why utilitarianism cannot be the governing ethic in cooperation between WSD and SSD. The goal of the family metaphor is to restore the well-being of the individuals and simultaneously to work for the well-being of the family unit, as illustrated in Figure 9.3 below.

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<sup>41</sup> This paper does not consider the huge regional differences in economic, social and environmental status in the world – but discusses on a theoretical global level.

<sup>42</sup> Although severe signs are already visible in the form of increased loss of biodiversity, water shortage and longer periods of drought in already marginalized regions.

Autonomous goals:	Well-being Parents	Well-being Child	Well-being Family
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Figure 9.3: The Family metaphor

The family is an anthropocentric metaphor which might be seen as a critique from the point of view of SSD which claims there is no need to understand nature in the way we understand the human made economy. We simply need to respect that nature has a value of its own. If man dies out, nature will live on – but not vice versa. Hence nature is the strongest – there is no inevitable coexistence with man’s economy. Still, as long as humans are still around, nature is affected by human behaviour – here expressed through the economy. And the economy depends on nature. This inevitable coexistence, here encapsulated in the metaphor of the family unit, implies that some form of communication and interaction does take place. The duality of the family metaphor; the well-being of both individuals and the family unit, can inspire continuous cooperation in the discourse of reflexive sustainable development.

### 9.11 Conclusions in light of Norwegian policy statements

Norway has dedicated itself to work for and to promote a new international agreement following the Kyoto Protocol. The official policy is that all individuals and levels in society have to contribute, but an international agreement is still important to succeed in mitigating climate change (White paper nb 1 (2007-2008)). This section looks into how sustainable development is defined in three recent and principal Norwegian documents on climate change. The following citations show that sustainable development is either described indirectly, or by using both WSD and SSD. But WSD and SSD are not discussed in relation to each other.

White paper number 34, with the English summary 'Norwegian climate policy' (Norwegian Ministry of the Environment, 2006-2007; White paper nb 34, 2006-2007) gives no exact definition of sustainable development. Instead, sustainable development is described indirectly through a description of the means of achieving sustainable development as illustrated in the following citation: "The concept of tolerance limits and precautionary principle are closely linked to the principle of sustainable development, which underlies all areas of Government's policy, and they can be regarded as means of putting sustainable development into practice."(Norwegian Ministry of the Environment, 2006-2007, p. 9).

The report 'Norwegian climate policy' (Norwegian Ministry of the Environment, 2006-2007, p. 10) is another example of an indirect description of sustainable development. "The scale of greenhouse gas emissions and the rate at which they are rising constitute one of the clearest breaches of the principle of sustainable development today."

In White paper nb 1 (2007-2008) there is a more specific description of sustainable development. The starting point is a reference to the Brundtland Commission which uses human welfare as a yardstick for sustainability (White paper nb 1 (2007-2008), chapter 7.2.1). It is then argued that all resources be seen as capital; real assets, human capital and environmental capital. In this regime it is the total amount of capital that determines the sustainability. This is WSD. In the same white paper it says that because of irreversible changes in nature, such as climate change, Norwegian environmental policy must be seen in relation to the threshold values of nature (White paper nb 1 (2007-2008), chapter 7.2.1). In the economic literature this is defined either as a modification of WSD, or as SSD. Either way, it is a limitation on substitution, i.e. the common base for WSD and SSD in this paper.

To describe sustainable development indirectly in policy papers does not bring to the forefront associated and different ethical foundations. To describe both WSD and SSD does not mean that both can be achieved simultaneously. Mutual features,



contradictions and differences should be highlighted (Mouffe, 2005). The policy statements above are examples of an opportunity to discuss WSD in relation to SSD. Such an academic discussion will spell out more clearly the policy choices to hand, including the ethical dimensions of a given policy. To initiate or take part in such a discussion is an opportunity to influence and change policy, which is the intention of this paper. Reflexive sustainable development is a pathway towards SSD, compared to the practical policy of today.

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## **10. Summing up**

The overall research question of this thesis is how to move from weak towards strong sustainable development. As outlined in the Introduction, the research area is limited to: A) critical analysis of specific areas of Norwegian economic policy on mitigating climate change in the light of Weak and Strong, and B) developing economic theory to contribute to a more informed understanding of sustainable development. This last chapter sums up the main practical implications and theoretical contributions, in the light of A) and B).

### **10.1 Cases and implications**

#### **10.1.1 Paper 1 on Carbon Capture and Storage**

This paper contributes to both A) and B) above. The purpose of the paper is to highlight conflicting interests between climate change and the technique of carbon capture and storage (CCS) within the Norwegian petroleum industry. The paper finds using circulation economics and Strong adds essential preconditions to the technique of CCS. First the global environmental gain must not be outnumbered through an increase in production volume. Second, if the technique does not contribute to Strong, then the producers must instead limit the extraction of the petroleum. (Nilsen, 2008, p. 111, Abstract) This paper is the most ‘clean’ approach, as it stays within Strong and circulation economics. The policy advice stands out clearly, and also provides an answer to the overall research question. But within the policy area of CCS, Strong is far from being recognized as an alternative – as of today (Research Council of Norway & Gassnova, 2008). This paper inspired searching for an area of economics where policies which relate to Strong are recognised and debated, hence the case of paper 2. The motivation was to search for explanations and justifications of Strong, and why these explanations and justifications are valid in one area, but not used in other areas.

### **10.1.2 Paper 2 on the Norwegian Government Pension Fund - Global**

This paper mainly contributes to A) above. It offers an analysis of a rare Norwegian economic policy area where Weak and Strong are discussed in relation to each other. The paper gives a critical analysis of why contributions to climate change are not defined as severe environmental damage within the Ethical Guidelines for the Norwegian Government Pension Fund – Global (the Fund). The two research questions are:

- 1) Do the Ethical Guidelines fall within the sphere of Rawls' idea of overlapping consensus?
- 2) What is the economic policy effect of simply removing the basis of overlapping consensus for the Ethical Guidelines, with regard to the issue of climate change?

The answer to question 1) is no. The basis of overlapping consensus is a fundamental constraint, even though the Ethical Guidelines do not fall within the sphere of Rawls' idea of overlapping consensus. The motivation specified in the previous section on finding explanations and justifications of why Strong is valid in one area – but not used in others – was not found beyond references to overlapping consensus. In the paper it is suggested that by simply removing the basis of overlapping consensus, discourse as outlined by Habermas and Apel, can evolve. This is the answer to the second research question. Such a discourse will force the investors to explain, beyond referring to overlapping consensus, investments in firms emitting huge amounts of greenhouse gases.

Sovereign wealth funds are potentially powerful policy instruments, as they control a huge part of the world's financial assets. The increasing severity of the climate change situation, and the inadequacy of today's mitigation policy calls for every possible instrument to be considered as more effective policy tools. The underlying principle of overlapping consensus is hindering a substantial and official argumentation of today's lax praxis with regard to mitigating climate change. Paper 2 argues that the mandates



of Norges Bank and the Council on Ethics should be modified to enable substantial discussions regarding each case in hand. The shareholders of the Fund, the Norwegian people, must be made aware that the Ethical Guidelines do not ensure the acceptability of the investments with regard to climate change – only acceptance of a rather traditional investment regime. Raising awareness on this issue and demanding substantial arguments is a step towards moving to Strong sustainability. This is the answer of paper 2 to the overall research question.

Paper 3 is inspired by the gap between the scientific recommendations of papers 1 and 2, and the current economic policy within these areas. Paper 3 suggests a theoretical platform for enabling a joint discourse of Weak and Strong.

## **10.2 Theoretical contributions and limitations**

The main theoretical contribution of this thesis is materialised in a new concept called reflexive sustainable development. This concept is the outcome of the reflexive discussions of the methodology of Weak and Strong in Chapter 2, and the conclusions of paper 1 and paper 2. The theoretical reflexive discussions include the critical approach of reflective research and discourse analysis, ontology and double hermeneutics. In addition, Weak and Strong are analysed with a historical, political and ethical perspective (Chapters 3 – 6).

### **10.2.1 Paper 3 on Reflexive sustainable development**

This paper contributes to B) above. The idea behind paper 3 is to develop a theoretical foundation for a more evenly balanced discourse between the proponents of Weak and Strong, than is the situation detected in papers 1 and 2. This is also the main theoretical answer to the overall research question, how to move from Weak to Strong. The joint discourse of reflexive sustainable development is proposed, framed in discourse ethics

and consisting of a common theoretical foundation and compromises. Both proponents of Weak and Strong must argue why a specific theory is to be preferred to another, for each particular case at hand. A more common theoretical approach is to consider Weak and Strong as separate scientific paradigms, in the way of Kuhn. This approach does not, however, contribute to or inspire a joint discourse.

Reflexive sustainable development is constructed to resemble a family. Here both consensus and compromises amongst all members are necessary for the well-being of both individuals and for the family as a unit. The family as a unit resembles the inevitable coexistence of man and nature, whereas the individuals represent economy and nature.

### **10.2.2 Characteristics of reflexive sustainable development**

The weakness of using a reflexive approach is that it may seem messy and therefore challenging or confusing for the reader. Neither does it contribute to building a solid school of thought, or a paradigm. The degree of in-depth analyses within each school of thought is less than in a non-reflexive approach. This is also due to the practical issue of being short of time, which can be termed a standard characteristic of completing a PhD.

Where then does this kind of research fit in? My starting point is a debate in the field of economics: that of Weak versus Strong. Reflexive sustainable development is concerned with discussing and proposing solutions to particular cases at hand, within an ontological holism. “Disciplines are distinguished partly for historical reasons and reasons of administrative convenience (such as the organisation of teaching and of appointments), partly because the theories which we construct to solve our problems have a tendency to grow into unified systems. But all this classification and distinction is a comparatively unimportant and superficial affair. We are not students of subject matter but students of problems. And problems may cut right across the borders of any

subject matter or discipline.” (Popper, 1952, p. 125) Popper says he admits that some problems ‘belong’ to traditional disciplines, but that the classification into disciplines is still comparatively unimportant. Reflexive sustainable development is inspired by this problem-driven approach.

Having said this, reflexive sustainable development rests on the specialized theoretical and practical contributions within the traditional disciplines - or schools of thought - which Weak and Strong respectively are part of.

### **10.3 Further research**

This thesis suggests using reflexive sustainable development to move the situation from Weak towards Strong, and in this way mitigate climate change – without increasing other severe environmental drivers and stressors. It is a case-driven approach, where substantial discussions are to take place first, before advocates from diverging schools of thought argue their eventual positions.

Reflexive sustainable development can be developed further theoretically, but should always be linked to a specific problem or case. Reflexive sustainable development can be used in processes amongst academics, as well as involving politicians, bureaucrats, journalists and interested laymen. There is, unfortunately, a wide range of problems involving nature versus economy for which reflexive sustainable development can be relevantly applied. Moreover, reflexive sustainable development is an appeal in the *urgent* situation of environmental degradation and the consequent major human tragedies for already marginalised areas of the world.

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