Green innovation – co-learning and conflict resolution

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Abstract

In this paper we look at innovation systems in relation to ecosystem services, including in particular innovations in the governance of ecosystems, and how this affects the processes of innovation in a local (rural) context. We take the learning approach to innovation and innovation systems (Freeman, 1987; Lundvall, 1992) because we consider this to be the most valid approach to the kind of "green" issues we are working with, in particular production and management of food, water, waste and renewable energy.

In a system dynamics approach, ecosystem services under certain circumstances flow from natural capital just as human services flow from the stock of human capital. If a capital depreciates then ceteris paribus, the flows from it decrease. If these services are recognised by humans they can increase human wellbeing and/or economic activities. The 'green economy' approach currently favoured by the European Union as well as the Organisation for Economic Cooperation and Development (OECD) introduces the challenge of solving environmental problems while simultaneously creating economic benefits and human welfare[1].

The management of many natural resources today is either driven by the need to reduce pollution as in the Water Framework Directive[2], or by the economic return gained from natural resources like food production, timber, water, wind and sun, or oil. The idea of the green economy is to find win-win solutions that resolve conflicts between economy and environment for the benefit of both humans and nature. Reaching this goal demands an innovative approach to governance at local and other levels, as well as to product innovations.

To illustrate this demand, we will present two examples of innovative approaches to governance, which led to simultaneous economic and environmental gains in rural areas.

- *The Morsa Water Area in Norway exemplifies how good governance can bridge the gaps between stakeholders. Seen throughout history, conflicts exist between those who are affected by pollution problems and those that are affected by mitigation. Through bottom-up governance processes with stakeholder involvement, and jointly agreed scientific status assessment and knowledge building, this freshwater catchment has once again*

[1] For more information on the OECD Green Growth Strategy, see www.oecd.org/greengrowth. The EU position is in COM (2011) 363 final: 'Rio +20: towards the green economy and better governance. Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions.

[2] The EU Water Framework Directive 2000/60/EC requires that all inland and coastal waters within defined river basin districts in the EU (and ETA) must reach at least *good status* by 2015 and defines how this should be achieved through the establishment of environmental objectives and ecological targets for surface waters. The Directive requires public consultation, and adopts a water-basin approach to water management

regained its recreational possibilities and is a useful source for agriculture and industry while also meeting the pollution reduction demands of the WFD.

- *The Windturbine example from Denmark shows how 'well-thought' institutional regimes for 'green energy' can create economic success. Through a process with policy design and implementation for supply, demand, local ownership, social acceptance and R&D, the result is a wide distribution of economic benefits and wind turbine production as one of Denmark's largest export industry, while at the same time making Denmark a leading nation in terms of reduction of climate gas emissions from energy production.*

Introduction

The production of food and energy are particularly important challenges that need to be addressed in the coming years in much more effective ways because of their current utilisation of fossil fuels, contribution to greenhouse gas emissions, and other adverse environmental impacts including those on ecosystems. Additionally, food security is a key issue at global level due both to present and anticipated population increases (FAO 2002). The reliance on fossil fuels and, in many respects, inefficient and carbon-intensive production systems is a key challenge in both industrialised countries and the emerging economies. Governance and management of water resources – crossing administrative boundaries and with both quality and quantity being challenged – is a highly relevant topic that needs to be addressed. These ecosystem services and their corresponding problems due to human use implies that innovation in these fields is urgently needed. The main question here is how can these new approaches be developed and encouraged? One useful approach to this lies in innovation systems thinking.

Towards Green Innovation: innovation systems and co-learning

Innovations are created by systems within which key elements, actors, and stakeholders have shared goals and visions around a concrete problem, and interact to tackle that problem through time (Freeman, 1987; Lundvall, 1992). Although such innovation systems may in some cases be 'national' they are also often regional in character, and can be focused around specific regional environmental, cultural, human, or natural resource or activity (Cooke, 2008). This is often the case in rural regions where innovation systems exist in in such areas as food production and related value-added, fisheries, forestry and forest products, furniture manufacture, boatbuilding, textiles, renewable energy, and tourism (Midtun & Koefed 2005; Bryden & Dawe, 1998; Bryden & Refsgaard, 2008; Bryden & Hart, 2004; Bryden et al, 2011; Cooke, 2008; Hall, 2011; Kvam & Stræte, 2010) .

A crucial stream of literature on innovation systems originates with Freeman (1987) and Lundvall (1992). Freeman and Lundvall focused on innovation as a process, and mainly considered the emergence of national innovation systems. However, the ideas of Freeman and Lundvall were influential on research on the emergence and development of regional innovation systems. In particular, they were interested in how different actors come together with a common goal for new products, policies and processes, and this led to further research focusing on the interactions between the central and local State (public institutions), the academy (universities and research institutes), enterprises, and users (customers) in the innovation process.

In a parallel, but more rural and ecological, stream of thought based on soft systems theory, Neils Roling at Wageningen developed the notion of 'platforms', which use soft systems ideas (Checkland, 1981) to take human actors experiencing a problem situation through processes of accommodation between conflicting objectives and perspectives and of joint learning to improve

the problem situation[3] (Roling, 1993; Bryden, 1994). Roling defines a 'platform' as a "*group of human actors who collectively appreciate problems with respect to, learn about, and take action to effect change in, an ecosystem which they have identified as needing unified management and in which they hold stakes*" (Bryden, 1994:218). Platforms are thus closely related to the notion of "learning organisations' in management theory (Senge, 1990). They are a form of learning organisation made up of "a group, organization or society" which can "exert agency, that is make a difference on the basis of (shared) knowledge, (shared) intent, and (joint) decision, given a (common) structure" (Bryden, 1994: 219). The following diagram illustrates the relationship between structure, agency and ecosystem and the place of the 'platform' within it.

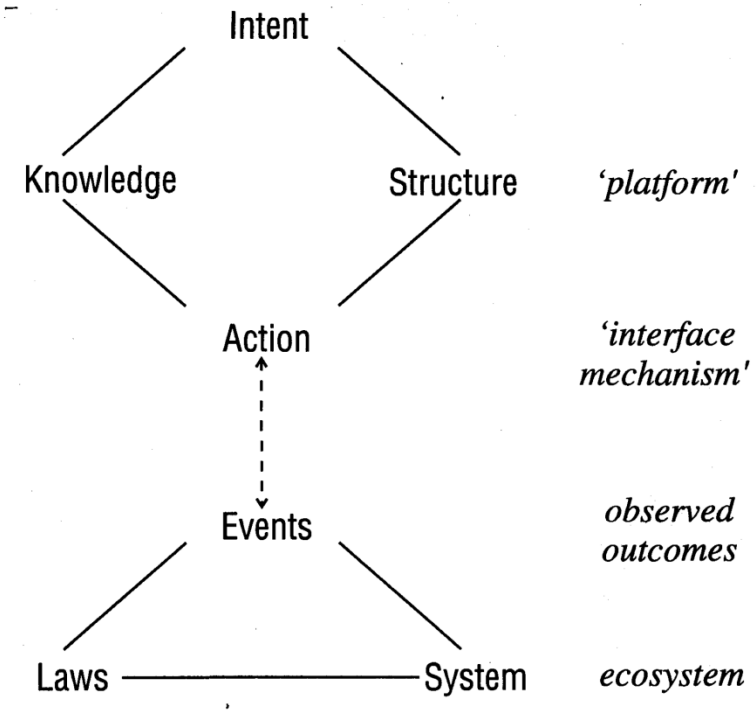

Figure 1: Structure, Agency and Ecosystem – A Soft Systems Approach. Source: Adapted from Roling (1993), in Bryden (1994: 219).

Although this simple diagram can be criticised for its inadequate treatment of institutions, political and market power, and government, it shows that the 'platform' is a place where the stakeholders bring knowledge to the table, develop new knowledge and decide to take action (exercise 'agency') to fulfil their shared goals or intent. It is where 'accommodation' between interests or stakeholders takes place. The platform can also be seen as the mechanism through which innovations occur over time, and the whole can be seen as an 'innovation system'.

[3] Note that processes of 'accommodation' are not the same as 'consensus-building', since accommodation recognizes the normal presence of different interests in a platform. In soft-systems, systems are constructs of the mind constructed for human understanding, and the boundaries of any system will vary with perspectives. 'Hard' systems are seen as entities that actually exist in the real world, or 'ontological'.

In this paper we look at innovation systems in relation to ecosystem services, including in particular innovations in the governance of ecosystems, and how this affects the processes of innovation in a local (rural) context. We use Lundvall (1992) and Freeman's (1987) 'learning approach' to innovation and innovation systems because we consider this to be the most valid approach to the kind of "green" issues we are working with, in particular food, water, waste and renewable energy. We also refer to 'green innovation' by which we mean innovation that delivers to the three goals of 'sustainable development' – environment, economy, society (World Commission on Environment and Development, 1987). Green innovation thus includes, but is not confined to, innovations in relation to natural resource management and governance.

From «negative externalities» to ecosystem services – State-of-the-art

Natural resources and ecosystem services (ESS) constitute "the natural capital that supports economies, societies and individual well-being". Natural capital tends to provide multiple benefits, for example—wetlands provide water treatment and purification services, prevent floodings by retaining surface runoff, and provide wildlife habitat. They enhance economic benefits through scenic and recreational values, food production, and, in the future, carbon sequestration (Knickel & Kroeger 2008; Voora & Venema 2008; TEEB 2009). Despite their importance, ESS have yet to be incorporated into decision making (TEEB, 2009). One problem is that the diverse range of benefits and — if some activities are reduced - costs, costs, cannot entirely be expressed in comparable, normally monetary terms. A related problem is that a number of goods and services appreciated by society are not valued in monetary markets (Stenger et al., 2009). Valuation through markets is relatively straightforward. The valuation of non-market and less tangible goods and services, however, is more complicated and more controversial (MA, 2005; Stenger et al., 2009; TEEB, 2011). Sound management of natural resources can simultaneously help achieve economic, environmental and quality of life goals simultaneously. A part of sound management concerns multilevel governance, and the need for policy to fit into diverse regional and local contexts and priorities (OECD, 2006, 2011). However, resource managers and policy analysts involved in protecting and managing natural resources must make decisions, which involve multiple trade-offs in allocating resources. These are mainly economic decisions and based either explicitly or implicitly on the value society places on services (TEEB, 2011). The environmental policy and decision making challenge is to maintain ecological services and functions while also meeting the needs of enterprises, domestic users and society in general. To this end, there is a tendency to use economic valuation for justifying set priorities and programs, policies, or actions that protect or restore ecosystem and associated services. In resource and environmental economics the concept of 'externality' is central. The concept implies that one part either creates a positive or negative externality without being paid or charged. Within such a perspective synergy is not considered. An important justification for using the idea of innovation platforms on green innovations is that the natural environment is a common good, implying that what one person or firm does influences the opportunities for others. In applying the continuum, from research to project implementation, innovation platforms build a knowledge base directly benefiting research, its partners and the wider community. The different fields of action comprise research, education and project implementation. This is supported by the dissemination of project results and lessons learned. The linkages between the different activities create a reliable platform of exchange for practitioners, policy makers and researchers.

Against this background it is not surprising that 'green innovation' is an increasingly popular research field. In the EU's 'Europe 2020' strategy 'green innovation' is seen as a means to improve competitiveness in relation to Asia and USA (Bernauer et al., 2006). It is argued that there are many unrealized opportunities for economic development based on novel and more

efficient uses of natural resources. OECD's 'green growth' strategy (OECD, 2011) provides a practical framework for governments in developed and developing countries to "seize opportunities that arise when the economy and the environment work together". The OECD is now focusing on innovation in renewable energy as a green development potential of rural areas (Bryden, 2010).

The growing interest in 'green innovation' can also be seen as a reaction to several decades of a strong focus on implementation of measures to reduce environmental problems, with respect to specific groups. Often emission limits for pollutants have been set considering only the marginal costs but not considering the marginal benefits. An example of this is the European Water Framework Directive where cost-effectiveness is proposed as the means for decision. Such means lead to conflicts between different groups, those being affected by the pollution problems and those responsible for the mitigation measures, leading to challenges for the authorities that have to balance the different goals and design the measures. Recently the OECD published a report on Water Governance and emphasized that “Better water governance is now recognized as a key condition for a fairer, cleaner and greener economy” – and states that “the “water crisis” is a governance crisis” (OECD, 2011).

Our approach

The objectives

The objectives for a focus on ‘green innovation’ are to analyse, develop, and design innovation systems that simultaneously improve welfare, social justice, economic development and environment. This implies a need to approach natural resources and environmental problems from a proactive and business perspective where the challenge is to achieve synergy between economic, environmental and social considerations for the different groups in society. There are two main reasons for the focus on green. First the focus is on natural resources turning into value through human activity. Secondly, it gives explicit consideration of environmental issues. As such this creates among other challenges for research on:

- From former conflicts to building alliances between different interest groups to gain a win-win situation
- From a regulatory to a collaborative process (changing attitudes)
- From problems like pollution to opportunities with ecosystem services as business opportunities
- Bottom up innovation as an important element (considering all ‘voices’)

This paper is as such, an introduction to future research on Green Innovation. It needs therefore to be understood in the setting of the development of a new research area.

Our theoretical approach

Our understanding of green innovation is closely related to the definition by ´STEPS[4]: *“By innovation, we mean new ways of doing things. This includes not only science and technology, but – crucially – the related array of new ideas, institutions, practices, behaviours and social relations that shape scientific and technological patterns, purposes, applications and outcomes.”*

[4] The STEPS (Social, Technological and Environmental Pathways to Sustainability) Centre is an interdisciplinary joint centre of the Science Policy Research Unit (SPRU) and the Institute of Development Studies (IDS) at Sussex University, UK, funded by the Economic and Social Research Council.

For this broader understanding of innovation systems—encompassing policy practices, institutional capabilities, organisational processes and social relations—STEPS STEPS suggest a new 3-dimensional agenda (STEPS Centre, 2010). They argue that such an agenda is central to move away from progress defined simply by the scale or rate of change and to focus on the following three dimensions:

- Directions for change
    - Which kinds of innovation?
    - Along which pathways?
    - Towards what goals?
- Distribution
    - Who is innovation for?
    - Whose innovation counts?
    - Who gains and who loses?
- Diversity
    - What – and how many kinds of innovation do we need to address any particular change?

Authors Midttun and Koefoed (2005), Freeman, Nelson and Lundvall (1988) and Porter (1990) introduce the Extended Innovation-Cluster-Concept, which is also relevant for our understanding of innovation, shown in figure 2. The concept has three main elements with some core relations between them. This implies a complex interplay between a number of institutional elements and societal spheres:

- The commercial core, including both supply side and demand side aspects of innovation and new business formation. This commercial core is then related both to political-administrative and societal/prepolitical forces.
- The former (the political-administrative element) operates through formal legislation, institutional conditions and resource allocation.
- The latter (the societal/prepolitical element) operates through organizational predispositions and competencies and societal preferences.
- The reliance on natural capital for the commercial core

There is a multilevel interplay between local, national and international arenas for all elements. This implies that coordination of levels and development of policy tools that reach across the levels.

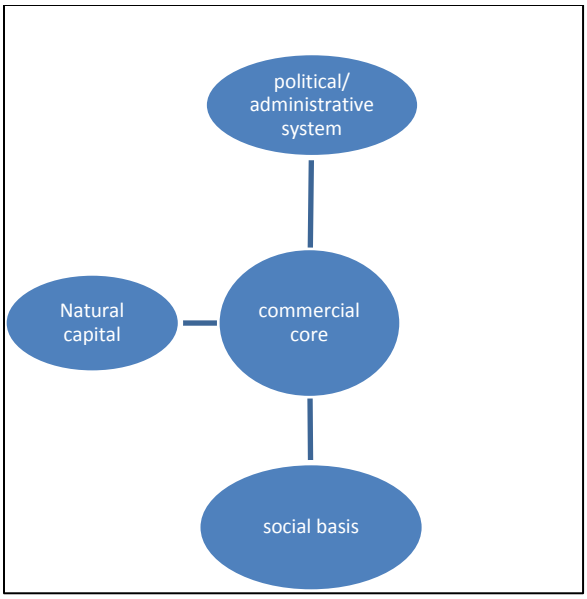

Figure 2: Our green innovation approach

Two successful examples

In this section we present two successful examples of innovative approaches to governance, which has led to simultaneous economic and environmental gains in rural areas and over time on national and international levels.

The Morsa case: "Bridging the gaps – holistic and local water governance in Norway"

The Morsa cooperative work started in 1999 as an initiative from the four municipalities in the Vansjø water catchment. In addition these municipalities managed to also include the four up-stream municipalities, regional authorities and the farmers unions in the two counties Østfold and Akershus in a joint preservation effort for lake Vansjø, which was in poor ecological condition. Vansjø is a unique recreational area, a drinking water reservoir for 60 000 people in the region of Moss as well as a reserve drinking water reservoir for two other towns.

Morsa was the first type of cooperation effort along the river—building on accommodation of different positions and interests and a common knowledge-based structure for decisions across sectors and across municipality and county borders. Through the establishment of mutual respect and trust, common goals and understanding of the importance of a good water environment, municipalities, regional authorities and last but not least, farmers and other inhabitants whom have carried out extensive measures. Instead of blaming each other across municipalities and sectors everybody has taken responsibility through participation. The main strategies for governance and their related reasoning were:

1. Organising a local water governance platform => mutual trust
2. Objective and neutral abatement measurement analysis => common knowledge to gain public understanding and consensus
3. Creating a river basin plan within the existing regulations => secure the coordination between the different authorities, vertically and horizontally
4. Harmonizing management => to secure a fair handling of citizens

In addition to the investment in improved governance and collective action through the local platform, there have been measures carried out within sewage treatment and agricultural projects costing about 90 million euros since 1999. Most of these costs have been covered by the inhabitants in the form of fees and investments, as well as transfers through the agricultural subsidies and voluntary inputs by farmers. Small amounts of public subsidies at state level did initiate excessive and in the beginning not very popular means – so the 8 mayors being frontier breakers and fighting for this need gained great respect. Thanks to the work with different measures and specific environmental contracts in parts of the watershed within the most polluted part of the lake, the water quality in Vansjø is improving. This has led to lowering of pollution levels, ecological improvement, and of course and children can now swim in the lake again (Stokke, 2008).

Since there was a mismatch between the hydrological and administrative boundaries as well as a policy failure, it was important to bring together "all" authorities in the water catchment and the most important stakeholders. The organization of a local platform was also important to overcome the information gap and to highlight the capacity and the funding gap.

The water Area in Norway exemplifies how good participatory governance can bridge the gaps between stakeholders. Historically conflicts existed between those who are affected by pollution problems and those that are affected by mitigation. Through bottom-up processes, stakeholder involvement, an agreed scientific status and knowledge building, the freshwater area has improved economical status, regained recreational use and is once again a clean source for agriculture, industry and the surrounding population.

The wind turbine case from Denmark

From the take-off with the oil crisis in 1973 and the cooperative movement, thinking Danish wind-millwindturbine producers have built up a world leading industry with covering dominating up to 60% of the world global market. In 2008, nationally, windturbines supplied more than 20% of the electricity. In 2012, the industry had 25.000 employees, and contributes 9% of Danish exports. The Danish windturbine success shows how a coherent focus on institutional, technological issues and acceptance among the general population has created the spread of a world-wide green energy source, which is also economically fruitful for Denmark (Wind power, 2012a; Wind power, 2012b).

Historically, electrical wind power for human use goes back as far as the late 19th century where the scientist Paul la Cour developed the first wind generator at Askov Folk high school to provide a growing Danish agriculture with electricity. This demand was followed by a law preventing the patenting of agriculturally related inventions including wind generators, in order to ensure knowledge-sharing and secure benefits for rural communities in general. About 80 years later a strong social mobilization was motivated by the debate over the introduction of nuclear power in the 1970s where wind energy—at the beginning of the oil crisis—was presented as an alternative energy source (ibid). Danish windturbine initiatives originated when individual investors organized in local turbine guilds, establishing small-scale community owned wind power systems. Such ownership was restricted to surrounding municipalities so as to ensure that those suffering from noise pollution and obstructed views also benefitted economically. This also helped to assure that wind generation of electricity was locally and nationally legitimate, and opposition has been notably absent in the Danish case. The technology was developed by a local machine tool industry using hydraulic principles from agricultural technology and excess farm labour. The investments were followed by extensive financial support from the government, and a

requirement for the power companies to purchase the energy for the common network. These events created a rapid and large increase in windturbine investments. In addition, the government supported a skills qualification scheme through research institutions and the turbine developers. The emergence of strong turbine-producers' and wind power producers' interest associations with active information to the public has also contributed to the industry's global leadership. (Midttun and Koefoed, 2005).

The Danish case has had articulated the importance of political-administrative ties. The success is due to a largely politically orchestrated domestic energy-system conversion that has fostered high level industrial competency and supplier industry, which has also strengthened the industrial base for Danish mechanical industry (Midttun & Koefoed 2005). In addition, the rapid expansion of the user base and the absence of patenting of key components led to a rapid technological improvement. Historically, the industry has been directly linked to Danish agrarian economy and cooperative history. The cooperative organisation has combined the role of creating rapid demand for windmills with mobilizing support in local and national decision-making. By 2004 over 150,000 families were either members or owned turbines, and about 5,500 turbines had been installed, although with greater private sector involvement the proportion owned by cooperatives had fallen to 75%. The cooperative model has also spread to Germany and the Netherlands.

The Windturbine example from Denmark shows how 'well-thought' institutional regimes for an ecosystem service can create economic success. In Denmark a broad portfolio of policies and measures was well adapted to the different stages in the development of its wind industry (Buen, 2006). The portfolio included policy instrumentation for supply, demand, local ownership, social acceptance and R&D the result is a wide distribution of economic benefits and wind turbine production as one of Denmark's largest export industry

Discussion

The idea of the green economy is to find win-win solutions that resolve conflicts between economy and environment for mutual and sustained benefit. Reaching this goal demands an innovative approach to governance at local levels, as well as to product innovations. The two examples presented illustrate innovative approaches to governance that both led to simultaneous economic and environmental gains in rural areas and internationally as well for the wind energy case. In our new research group we intend to become involved in action research on how such new forms of participatory governance at local levels may enhance capacities to develop innovative solutions to some of the difficult environmental-social-economic conflicts around renewable energy, water management, food production and distribution, rural tourism, and other rural activities. Further details will be discussed at the Conference.

References

Bernauer, T.,Engels, S., Kammerer,D., & Seijas,J. (2007). Determinants of Green Innovation - Ten Years after Porter's Win-Win Proposition: How to Study the Effects of Environmental Regulation? Vierteljahresschrift 39:323-341.

Bryden, J. (1994). Towards Sustainable Rural Communities. Guelph, University of Guelph.

Bryden, J. & Dawe, S.P. (1998). 'Development Strategies for Remote Rural Regions: What do we know so far? Keynote paper for the OECD international conference on remote rural areas – developing through natural and cultural assets. Albaruccin, Spain, 5-6 November.

Bryden, J. & Hart, J. K. (red.). (2004). A New Approach to Rural Development in Europe: Edwin

Mellen Press.

Bryden, J., Efstratoglou, S., Ferenczi, T., Johnson, T., Knickel, K., Refsgaard, K. & Thomson, K. J. (red.). (2011). Towards Sustainable Rural Regions in Europe: Exploring Inter-Relationships Between Rural Policies, Farming, Environment, Demographics, Regional Economies and Quality of Life Using System Dynamics. Routledge Studies in Development and Society. New York and London: Routledge.

Bryden, J. & Refsgaard, K. (2008). Does all innovation, creativity and growth happen in Cities? Innovation Systems and Rural Development: Proceedings from the 10th Annual Conference, Nordic-Scottish Universities Consortium, Faculty of Life Sciences, University of Copenhagen.

Buen, J. (2010). Danish and Norwegian wind industry: The relationship between policy instruments, innovation and diffusion. Energy Policy 34:3887-3897

Checkland, P.B. (1981). Systems Thinking, Systems Practice, John Wiley & Sons Ltd.

Cooke, P. (2008). Social Capital and Green Innovation. Paper for the OECD workshop o 'Partnerships for Development & Diffusion of Innovation. February, 2008.

FAO (2002). "World agriculture: towards 2015/2030" Rome, UN Food and Agriculture Organization (FAO).

Freeman, C. (1987). Technology Policy and Economic Performance. London

Freeman, C. (2009). Schumpeter's Business Cycles and Techno-Economic Paradigms. In Drechsler, Wolfgang, Erik Reinert, Rainer Kattel (Eds). Techno-Economic Paradigms: Essays in Honour of Carlota Perez. London, Athem Press: 125-145

Hall, H. (2011). Harvesting the rural creative economy: Queens School of Business, the Monieson centre.

Knickel K. & Kröger, M. (2008). Evaluation of Policies in Terms of the Mutifunctionality of Agriculture and Rural Space: More Integrative Conceptual and Analytical Frameworks Needed. Int. J. of Agricultural Resources, Governance and Ecology, 4/5:399-418

Kvam, G.-T. & Stræte, E. P. (2010). Innovation and Diffusion - Different Roles in Developing Nature-Based Tourism The Open Social Science Journal, 2: 30-40.

Lundvall, B.-Å. (1992). National Systems of Innovation. Towards a Theory of Innovation and Interactive Learning. London: Pinter Publishers.

MA (2005). The Millenium Ecosystem Assessment. http://www.maweb.org

Midttun, A. 6 Koefoed, A.L. (2005). Green Innovation in Nordic Energy Industry: Systemic Contexts and Dynamic Trajectories. In Weber M and J Hemmelskamp (eds): Towards Environmental Innovation Systems. Springer.

OECD (2006). The New Rural Paradigm. Paris, OECD

OECD (2011). Water Governance in OECD countries: A Multi-level Approach, OECD studies on Water, OECD publishing. http://dx.doi.org/10.1787/9789264119284-en

Roling, N. (1993). Person Communication, Cited in Bryden, J (1994) op cit.

Schumpeter, J., Senge, P.M. (1990). The Fifth Discipline: The Art and Practice of the Learning Organization. New York: Doubleday Currency.

Stenger, A., Harou, P. & Navrud, S. (2009). Valuing environmental goods and services derived from the forests, Journal of Forest Economics, 15(1), 1-14.

STEPS Centre (2010). Innovation, Sustainability, Development: A New Manifesto, Brighton: STEPS Centre. ISBN 9781858649250

Stokke, K.B. (2006). The Morsa River Basin, Norway: Collective action for improving water quality. In Rydin Y, Falleth E (eds) Networks and institutions in natural resource management. Edward Elgar, Cheltenham: 123–138

TEEB (2009). The Economics of Ecosystems and Biodiversity for National and International Policy Makers. See also http://www.teebweb.org

Voora, V.A. & Venema, H.D. (2008). The Natural Capital Approach: A Concept Paper. IISD, Winnipeg.

Wilson, M.A. & Hoehn, J.P. (2006). Valuing environmental goods and services using benefit transfer: The state-of-the art and science. Ecological Economics 60:335-342

Wind power, DK 2012a. http://en.wikipedia.org/wiki/Wind_power_in_Denmark. Downloaded 16. March 2012.

Wind power, 2012b. http://www.windpower.org/en/knowledge/statistics/industry_statistics.html. Downloaded 16. March 2012.

World Commission on Environment and Development, (1987). (The 'Brundtland Commission Report).