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# A Change in the Paradigm? Ecosystem Goods and Services in Finnish Forest and Environmental Policies

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## Abstract

The framework of Ecosystem Goods and Services, introduced by Millenium Ecosystem Assessment has entered as a key linkage between ecosystems and human well-being. This paper introduces and briefly analyses developments and state of affairs in Finland's forest and environmental policies and the ways the new emphasis on ecosystem services is so far documented in the strategies and policies related to forests and environment. Some attention is given to international and domestic reasons in this development, including a recent downturn of pulp and paper industries. The international changes from the "narrow" biodiversity focus to broader ecosystem services approach are already being taken into account in prospecting Finland's environmental policies. Comparing to the earlier "environmental turn" in forestry, one may call this as an ongoing "socio-economic turn" in biodiversity based environmental policies in Finland. Ecosystem goods and services will also play important roles in the larger economic, ecological and social frames called as 'green economy', 'green growth' and 'bioeconomy', outlined in some strategic reports. All these reasons, backed by the longer term or more recent development towards multiple-use, environmentally benign forestry and integrated natural resource management, may facilitate an active adaptation towards ecosystem goods and services framework in Finland's forestry. Consequently, an increased convergence and improved integration of forest and environmental policies within ecosystem services and other supporting frameworks, may result in policy changes which can be called as paradigmatic. Yet this preliminary conclusion requires better evidence and more detailed analysis – and the process itself more time to be consolidated.

**Keywords:** Biodiversity, forestry, environment, word, others

## 1 Introduction

In demonstrating the state and degradation of world ecosystems, Millenium Ecosystem Assessment (2005) adopted the framework of Ecosystem Goods and Services (in short; Ecosystem Services, ES) as a key linkage between ecosystems and human well-being.

The Economics of Ecosystems & Biodiversity-study (2010) further advanced the policy relevance of ecosystem approach, visioning it as the major tool towards responsible stewardship of the natural capital. Natural capital as a new concept to substitute and “rehabilitate” land as an economic resource emerged within ecological economics in the 1990s and was soon related to the concept of ecosystem services (Matero et al. 2003, Naskali et al. 2006).

There is a long history how the roles of “nature” or “land” has been perceived in the development of economic theories. Among the earliest examples, physiocratism regarded land as the most important source of wealth, while William Petty formulated concisely that “land is the mother and labor the father of wealth”. Later general economic theories (before ecological economics) appreciated nature much less (Saastamoinen 1978, Naskali et al. 2006, Hiedanpää et al. 2010) while land resource economics (e.g. Barlowe 1958) and in particular natural resource conservation textbooks (e.g. Owen 1971) included resource classifications what can be seen as forerunners for some of the categories now further developed in the rapidly growing science on ecosystem services.

The concept of ecosystem was first suggested by A.G. Tansley (1935), in his article “The use and abuse of vegetational terms and concepts”, published in *Ecology*. In ecological sciences, the ecosystem definition of Odum (1971) has been widely used (Kellomäki 2009): “Any unit that include all the organisms (i.e. the “community”) in a given area interacting with the physical environment so that a flow of energy leads to clearly defined trophic structure, biotic diversity and material cycles (i.e., the exchange of matter between living and non-living parts ) within the system is an ecological system or ecosystem”. Ecosystem approach emphasize the integrity and integration of all ecosystems. For example, the 5<sup>th</sup> Conference of Parties (COP 5) of the Convention on Biodiversity (CBD) recognized Ecosystem Approach as a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way and emphasizes that humans, with their cultural diversity, are an integral component of ecosystems (UNEP/CBD 2010).

This is in line with the idea of decoupled socio-ecological systems (Haila and Levins 1992, Haila 2010, Naskali 2010) which links more explicitly the influence of economy and institutional structures on the functioning of ecological systems. Already now it seems that the concept of ecosystem goods and services will be able to provide a genuine policy framework for further integrating natural and man-made (eco)systems in the ways sustainable development requires (e.g. Hiedanpää et al. 2010, TEEB 2010, Ratamäki et al. 2011).

The purpose of this explorative paper is to introduce and briefly analyze development and state of affairs of ecosystem services in Finland’s forest and environmental policies as reflected in some strategic policy documents and research reports. It is also it is considered what that may mean in further development.

## 2 Environmental policies and ecosystems

Environmental policy is one of the strong mandates of the European Union and the union has also been very ambitious in the environmental arena. Since Finland joined EU in 1995, the Finnish environmental policies, which as such had developed favorably during the previous (say) two decades, had to be adopted to the EU rules, alongside the growing importance of international environmental conventions EU also has promoted. As a new newcomer, Finland's environmental authorities seriously wanted to become among the best also in the EU class, following the prevailing official policy in Finland, which took every EU directive literally as was often claimed in general discussion (Heiskanen et al. 2009, OECD 2009). On the other hand, people's attitudes in environmental matters worked in a variety of ways (Sairinen 2001). Although that position among the forefront countries has probably already been achieved, to comply with the requirements derived from entirely different environmental, policy and cultural contexts, within the short time scales given, was not an easy task. This in particular appeared to be the case with the Natura 2000 programme, largely related to forests (cf. OECD 2009). The second still continuing problem arises from the authoritarian tendencies of the EU that fail to understand the context of wolves for rural livelihoods (Hiedanpää and Bromley 2010).

The OECD Environmental Performance Review (OECD 2009) provides the most comprehensive evaluation of Finland's environmental policies and environmental management. The review saw consolidation of progress and further alignment with EU environmental acquis. But it says that despite its low population density, Finland has experienced great pressures on its sensitive environment, as expressed by high energy and material intensities. Other environmental policy priorities include addressing climate change, fostering co-operation to improve water quality of the Baltic Sea, enhancing biodiversity in forests, and improving waste management and material efficiency (OECD 2009)

A new National Biodiversity Strategy covers the period 2006-16. OECD (2009) saw a lack of quantitative targets as an obstacle for evaluation. However, it noted that the integration of nature and biodiversity conservation concerns in national legislation has been strengthened and that Finland has ratified most international agreements in the field of nature and biodiversity conservation. The gaps in the national protected areas network, particularly in regard to forests and shore habitats in the South, and ecological connectivity were found (OECD 2009).

The fourth Red List of threatened species was published in 2010. There are 2,247 threatened species in Finland, which is 10.5 per cent of the 21,400 species evaluated. During the last ten years, the status of 186 species (10 % of the 1,505 species evaluated in 2000) has improved, while that of 356 has deteriorated. The majority of threatened species live in forests (36%) and changes in forest habitats are the primary threat to a total of 693 species. The rate of decline in species inhabiting forests and traditional rural biotopes has slowed slightly (Rassi et al. 2010).

OECD (2009) report's recommendations concerning *nature and biodiversity* and being closest to forests include the following: set up a national peatland strategy to guide efforts for their conservation and management, including peatland exploitation for energy use; enhance protection of rare and threatened forest habitats; link any support to private forest owners to otherwise unremunerated but beneficial public services; and increase the financial contribution of the tourism industry towards nature conservation, for example through public private partnerships and user fees on recreation services. Among other observations related to forests was, that though increasing, government support to environmental management is a small part of total government support to private forestry (OECD 2009). Ecosystem services (approach) as such were not among the major policy recommendations.

Ratamäki et al. (2011) summarize several points as policy related advantages of ecosystem services approach. It is a valuable instrument for interactive and multidisciplinary discussions about natural resources and their governance. The term also opens up new views on strategic planning of environmental policy and highlights the importance of socio-ecological processes. The ecosystem services approach allows to identify and understand how the ecological and societal elements are intertwined and together form the ensemble of governance of the natural and environmental resources.

Rather than considering the societal functions related to the utilization of natural resources as a threat to ecological sustainability, the ecosystem services approach helps us to learn how to use these societal functions as means in governance (Ratamäki et al. 2011).

Ratamäki et al. (2011) further note that the ecosystem services concept has enforced the development of monetary evaluations and economic instruments. But they also recognize the fears of many scientists and stakeholder groups that these economic considerations may become too dominant, and emphasize that other evaluation methods and instruments must also be systematically developed.

### **3 Forest policy and ecosystem services**

In regard to the policy formation and governance forest policy and environmental policy in Finland are in different positions. Forest policy stand largely on its own domestic wooden legs and decision making is primarily in the hands of the national government and the parliament as well as the national stakeholders. It is very much within a sphere of national governance, much because the European Union has not a mandate in forest policy. This does not mean that international principles and recommendations are not having influence on Finnish forest policy. It is the other way round. Finland has been active in international forest arrangements and is therefore committed to be in the forefront in complying with the international soft norms in forestry such as the non-legally binding Forest principles of UNCED 1992, UNFF recommendations and Pan-European Criteria and Indicators for Sustainable Forest Management.

In the past there used to be many, sometimes considerable, tensions between the major architects of forest and environmental policies in Finland: the Ministry of Agriculture and Forestry and the Ministry of Environment, emerging gradually since the establishment of the latter in 1983, although environmental policies started to develop much earlier. However, often the conflicts were first found to appear outside of the offices of the ministries, in the form of activities of environmental organizations and movements or between the major stakeholders and their networks or “coalitions”. Although, largely due to the different mandates and complexity of issues, some tensions between the ministries still exists, much of it was released during the “environmental turn” of Finnish forestry since mid 1990s. For example, the reform of Forest Act and Nature Conservation Act was done in a coordinated way and the National Forest Programs were keenly affiliated with a Forest Conservation Program for Southern Finland with considerable funding. All that increased cooperation between the two ministries (Palo 1993, Saastamoinen 1996, Ollonqvist 1998, Viitala 2004 ).

Similar paradigmatic “environmental turn” can be seen in the world forestry (although uneven, if not polarized, geographically and between country groups) due to global environmental conventions, the non-legally binding forest agreements, pressures from environmental NGOs,

promoted also via market actors, and other international activities (Humphrey 2006, Saastamoinen 2009, McDermott et al. 2010, Rayner et al. 2010).

The concise and target-oriented forest policy of Finland has already for decades been formulated in national forest programs or been influenced by similar types of earlier programs, however developed more independently from the state leadership than the modern national forest programs.

Finland's (revised) national forest programme 2015 was accepted by government resolution in December 2010. The program carries a sub-title *Turning the Finnish forest sector into a responsible pioneer in bioeconomy* (Ministry of Agriculture and Forestry 2011). "In bioeconomy, natural resources are used in a sustainable manner, replicating and taking advantage of biological processes in the processing operations" the programme defines. It is visioning that "over the next few decades the forest sector can and should be developed into a *biocluster*, which produces more and more materials and services to other industrial sectors". Ecosystem goods and services are mentioned in several connections in the program document, but not as the mainstream approach.

Ecosystem services were taken as an additional indicator into the Finnish application of Pan-European Criteria and Indicators for Sustainable Forest Management. However, so far it formally include only one possible description for the classification of ES for Finland's forests without direct connections to the document's abundant empirical data, which as such is useful for demonstrating the quantitative and qualitative dimensions of the state of many forest ecosystem goods and services (State of Finland's Forests 2011).

The best practices so far in the Finnish forestry can be found in the state forests, covering roughly one third of forestry land areas (including open fell areas of the north, treeless peatlands and also state owned water areas). All these areas are managed by the hybrid type business oriented state forest organization carrying the traditional name Metsähallitus, which refers to its past central role in forest administration. It is an innovative organizational structure under the Ministry of Agriculture and Forestry and the Ministry of Environment. The latter supervises the activities of the department called Nature services, having the management of national parks and other conservation activities as its main tasks.

Hytönen (2009, 102) observes that "the planning systems of Metsähallitus provide many possibilities to take care of nature management crossing the borders of ecosystems. Natural resource planning and landscape-ecological planning being part of it provide a possibility to compromise the needs of economic use of forests, nature conservation and recreation at local and regional levels". Recently Metsähallitus published comprehensive guidelines for nature management based on ES concept and approach (Päivinen et al. 2011).

#### **4 Considerations and preliminary conclusions**

The concept of ecosystem services brought by Millenium Ecosystem Assessment (2005) together with its complementary TEEB (2010) can be interpreted as a paradigmatic change in the processes based on the Convention on Biological Diversity, being in the core of international nature conservation agenda. Although CBD as such has always had an anthropogenic "dimension", ecosystem services approach makes it more visible and stronger.

At the same time it brings biodiversity more understandable and operational, and therefore probably more acceptable for the majority people.

These international changes from "narrow" biodiversity focus to broader ecosystem services approach are already being taken into account also in prospecting Finland's environmental policies (Ratamäki et al. 2011). Comparing to the earlier "environmental turn" in forestry, one may call this as an ongoing "socio-economic" turn in biodiversity based environmental policies.

In particular, ecosystem goods and services will play important roles in the larger economic, ecological and social frames called as 'green economy', 'green growth' and 'bioeconomy', originally being visioned in the broad field of environmental policies, ecological economics and environmental movements (e.g. Craincross 1991, Naskali et al. 2006).

These aspects have more recently been given much consideration also in many reports oriented towards economy, society and industries at large. For example, Natural resources strategy *Intelligently powered by nature* (SITRA 2010) claims for being one of the world's first national natural resource strategies to combine all natural resources under a shared strategic framework. It states that sustainable use of natural resources is becoming the driving force behind global development.

Sustainable use of forests has been the backbone of the forest industries in Finland. However, the tight competitive conditions in global forest industries demonstrated by the ongoing structural changes in pulp, paper and other forest industries in Finland, have compelled for the renewal of visions, strategies and images (Hetemäki et al. 2011). What has been called an unexpected downturn and crisis of pulp and paper industry in Finland, has resulted numerous state supported analyses and reports within the government, in research institutes and universities, besides the internal analyses within the industries, to find the ways out of the crisis. While each report has had their own focus, the results and recommendations concerning the future of the whole forest sector produced during (e.g. Niskanen et al. 2008) and after the crisis (Hetemäki et al. 2010, Donner-Amnell et al. 2011), can be summarized as emphasizing the need to develop a more diversified industrial and other value-adding (production and consumption) structures based on forests and forestry. These kind of policy recommendations can be called as diversification strategies and they are well in line with a suggested multi-cluster strategy to complement the existing forest cluster strategy (Saastamoinen 2005, Saastamoinen et al. 2006). It has made the whole forest sector more responsive to many challenges and opportunities, which the new concepts such as ecosystem services and biocluster may be able to envisage.

All the above reasons, backed by the longer term development towards multiple-use and environmentally benign forestry and integrated natural resource policy, may facilitate an active adaptation towards ecosystem goods and services framework in Finland's forestry. Consequently, an increased convergence, collaboration and better integration of forest and environmental policies within ecosystem services and other supporting frameworks in Finland, may result in policy changes which can be called as paradigmatic.

However, although the logic of argumentation above may be regarded to be sound, the evidence given above is sporadic and more detailed work and analysis is needed, before the question mark in a title can be removed. At the end of the day, it is practices, policies, politics and people, which do it or not.



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