THE ECONOMICS OF ECOSYSTEMS & BIODIVERSITY
NORDIC SYNTHESIS

SUMMARY FOR POLICY MAKERS:

Socio-economic Importance of Ecosystem Services in the Nordic Countries

Synthesis in the context of The Economics of Ecosystems and Biodiversity (TEEB)

Financed by the Nordic Council of Ministers (NCM) and the Finnish NCM Presidency in 2011

The synthesis of the Socio-economic Importance of Ecosystem Services in the Nordic Countries (TEEB Nordic) has been developed by the Institute for European Environmental Policy (IEEP) and Finnish Environment Institute (SYKE) with contributions and support from a range of Nordic experts. The study has been carried out in the context of The Economics of Ecosystems and Biodiversity (TEEB) (www.teebweb.org) and funded by the Nordic Council of Ministers in the context of the Finnish Presidency 2011 (www.norden.org).

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Full report:

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The Economic of Ecosystems and Biodiversity (TEEB): www.teebweb.org

Socio-economic importance and value of Nordic nature

Following in the footsteps of the global The Economic of Ecosystems and Biodiversity (TEEB) initiative, the Nordic Council of Ministers (NCM) and the NCM Finnish Presidency decided in 2011 to initiate a TEEB inspired synthesis in the Nordic context (TEEB Nordic). The aim of this synthesis has been to bring together existing information on the socio-economic role and significance of nature in the Nordic countries (i.e. Denmark, Finland, Iceland, Norway and Sweden).

TEEB Nordic shows that nature and its ecosystem services are of high socio-economic significance for the Nordic countries

Nature - while considered to be valuable in and of itself - provides a ra nge of benefits, i.e. so called ecosystem services, that fuel the global economy and underpin human and societal well-being. Nature also underpins our economies, with economic sectors such as agriculture, fisheries, forestry, tourism, pharmaceuticals, and food and beverage sectors directly depending on biodiversity and ecosystem services. In addition, a range of other sectors, including health and security, depend indirectly on nature. However, the concept of ecosystem services is still new to several sectors and, consequently, it still remains to be integrated into national policies and strategies, and business sector accounting and investment decisions.

The synthesis of existing information carried out in the context of TEEB Nordic shows that nature and its ecosystem services are of high socio-economic significance for the Nordic countries, whether that is based on their market value or estimated value for the broader public (see below). Natural capital (biodiversity, ecosystems and related services) underpins socio-economic well-being in the Nordic countries, but it is also clear from the existing evidence base that several of these ecosystem services including, for example, marine fisheries, water purification and pollination, have been seriously degraded and several others, such as carbon storage, are facing serious risks. In addition, rather alarmingly the information available does not yet allow any conclusions to be drawn on the status of and trends in several services, including key ecological processes and functions supporting them.

…in order to be truly sustainable, economic systems need to build on a more comprehensive appreciation and understanding of the value of natural capital.

Towards truly “green” green economy in the Nordic countries: policy conclusions and recommendation

Building on TEEB Nordic’s synthesis and insights Nordic policy and decision-makers at national, regional and local levels can now show leadership and foresight in their actions to support the protection and sustainable management of benefits provided by nature. The policy response should not be limited to environmental policies, but should also be mainstreamed into key sectoral policies such as fisheries, agriculture, forestry, climate and energy, transport and tourism. Furthermore, action is needed at all levels of governance and across all key sectors in order to also harness the energy of markets, business, citizens and communities.

The outcomes of TEEB Nordic emphasise that the first step towards integrating the value of ecosystem services into Nordic policies and decision-making processes would be to identify and develop a set of **national ecosystem services indicators**. The identification and development of indicators is needed to support the development of comprehensive **national frameworks for ecosystem and ecosystem services assessments** in the Nordic countries (e.g. long-term monitoring). Significant synergies could be achieved by enhancing Nordic cooperation in this area, including exchange of expertise and best practise. While identified key ecosystem services, related indicators and assessment frameworks might differ from one country to another, an overarching common set of (core) Nordic indicators would be beneficial, enabling comparisons to be made within and between countries and regions as well as facilitating reporting under international policy-processes such as the UN Convention on Biological Diversity (CBD) and EU.

The berries found in Nordic forests are worth millions of Euros every year

…it is also important to improve the Nordic decision-making systems so that they recognise - and equally consider - the full range of broader socio-economic values

Building on the assessment and monitoring of ecosystem services, it is generally acknowledged that in order to be truly sustainable, economic systems need to build on a more comprehensive appreciation and understanding of the value of natural capital. This requires the **development of natural capital accounts** that improve the evidence base on the stocks of natural capital, integrate ecosystem services into existing national and/or regional accounting systems and, in due course, take into account gains and losses in the stocks and flow of services. It is foreseen that the development of accounting systems - in cooperation with international and European initiatives - will be one of the key priorities for Nordic countries in the near future. A number of studies already exist exploring the possibilities for and implications of integrating the broader values of natural capital into regional and national accounts. These studies indicate that conventional accounts underestimate nature-related wealth and potential sustainable development based on natural capital.

To complement “greener” and more sustainable accounting systems, **pro-active investment in natural capital and nature-based risk management** via restoration, conservation and improved ecosystem management practices, should be adopted. For example, there is increasing evidence that restoration of wetlands can bring significant benefits to both people and biodiversity. In terms of investment in natural protection, there is clear evidence from Nordic countries that financial support for the management of national parks can be a highly cost-effective investment at regional level. Additionally, approaches pursuing broader environmental sustainability such as measures for **eco-**

efficiency and wider resource efficiency though resource pricing and fiscal reform can also be adopted (e.g. fisheries and agricultural subsidy reforms). Furthermore, **decoupling the economy from resource use and its negative impacts** through more radical innovation and changes in demand - supported by consumption choice changes through information provision - can be considered. Developing new clean products and processes, for example based on genetic and molecular resources, can also be a viable alternative for Nordic countries.

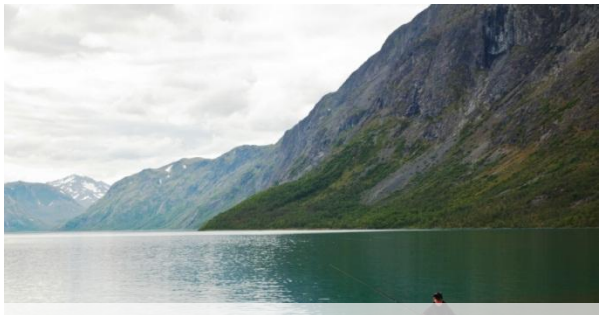
Finally, while the previously neglected economic values of ecosystem services need to be integrated into decision-making, it is also important to **improve the Nordic decision-making systems** so that they recognise - and equally consider - the full range of broader socio-economic values, taking into consideration qualitative, quantitative and monetary evidence. Similarly, economic approaches should be considered complementary – not replacing - already existing strategies for biodiversity conservation. A range of reasons and arguments for nature conservation (e.g. cultural and intrinsic values) cannot be replaced by economics.

The estimated economic value of berries picked for markets has been estimated to range between 500 thousand EUR / year in Norway to around 12 million EUR / year in Finland.

Insights in the socio-economic value of Nordic nature

Fishing in the Nordic countries is important both as an industry and as a hobby, leading to a high demand for sustainable management of fisheries resources. The fisheries industry is of high national and/or regional importance with the economic value of fish catch ranging from over 25 million EUR / year in Finland to over 2 billion EUR / year in Norway. There are over six million recreational fishermen in the Nordic countries. In Finland, Sweden and Norway, 44%, 30% and 50% of the population, respectively, reported having engaged in some kind of fishing activity in the past year. The size of catch by recreational fishermen in Finland was 48 million kg in 1998 and 79 million kg in Sweden in 1995. In Sweden, the net value of recreational fishing has been estimated at almost 79.5 million EUR, exceeding the value of commercial fishing.

Around one million Nordic people go hunting every year – almost 5% of the total Nordic population.



Over 6 million people in the Nordic countries fish recreationally

The Nordic forests produce several tonnes of wild berries annually with only a small fraction of them being used. The estimated economic value of berries picked for markets has been estimated to range between 500 thousand EUR / year in Norway to around 12 million EUR / year in Finland (in 2005). In addition to berries traded on organised markets, a significant amount of berries are also sold via direct markets. For example, in 2000 the value of berries sold in

market places and directly to households or restaurants in Finland was estimated to be over 3 million EUR while the value of berries collected for household use was evaluated to be 53.8 million EUR.

The socio-economic importance of hunting in the Nordic countries is a combination of revenue-providing activity, household subsistence value, and cultural and recreational significance. Around one million Nordic people go hunting every year – almost 5% of the total Nordic population. Estimates for the value of game meat were obtained from Finland, Sweden and Norway range between 44 – 125 million EUR.

Almost 5% of the total Nordic population go hunting every year

Recreational activities in nature are extremely popular in Nordic countries. An average adult Finn does some kind of outdoor activity on average three times a week. In Sweden, 36-56% of people reportedly use forests for walking at least 20 times a year. In Norway, hiking in forests or mountains is practised more than twice a month by almost half of the population (i.e. around 2.4 million people). Finally, in Denmark approximately 70% of Danes visited green areas several times a week. Outdoor life can have significant impacts on regional and national economies. In Sweden, the value added from outdoor life expenditure was calculated to be around 34 million SEK (~4 million EUR) and altogether spending on outdoor life would result in over 75,000 job opportunities. In Finland, financial support for the management of national parks and their recreation pportunities has been estimated to provide up to 10 EUR return for 1 EUR investment for a region.

Altogether 134 wild Nordic plant species have been identified that have medicinal or aromatic properties and that are of current socio-economic interest.

In Finland, the estimated value of carbon sequestration of Finnish forest trees to be 1 876 million EUR, and the value of change in mineral soil carbon stock to be 136 million EUR. In Sweden, the annual carbon sequestering value of Swedish forest to be between 29-46 billion SEK (2001 SEK) (~3.3 – ~5.2 billion EUR) based on the estimated consumption value of 11-18 billion SEK (~1.2 – ~2 billion EUR) and investment value of 18-28 billion SEK (~2 – ~3.2 billion EUR).

In Finland, the value of pollination by honeybees (selected crops) has been estimated to be around 18 million EUR and that of wild berries (bilberry and lingonberry) to be around 3.9 million EUR. In addition, an estimated value of pollination (by honeybees) in home gardens in Finland has been estimated as 39 million EUR. In Denmark the value of the general insect pollination service was calculated to be worth 421 to 690 million DKK (~56.6 to ~92.8 million EUR). In Sweden the value of honeybee pollination service was calculated to be 189-325 million SEK (~21.5- ~37 million EUR). When considering these

values it must be noted that insect pollination of greenhouse crops is often provided by commercial pollinators.

Honeybee pollination has a value of ~50 million EUR in Finland alone

There is increasing interest in researching biotechnological application based on Nordic and Arctic genetic resources. Furthermore, a number of Nordic plant compounds are currently used by the pharmaceutical industry (e.g. cardiotonic compounds from lily of the valley and foxglove, and endurance increasing compounds from roseroot). Altogether 134 wild Nordic plant species have been identified that have medicinal or aromatic properties and that are of current socio-economic interest. Recent examples of scientific screening of Nordic plants include, for example, sage species tested for their effect on type-2-diabetes in Denmark and Corydalis species on Alzheimer's disease.

Sources: please see TEEB Nordic full report by Kettunen et al. (2013)