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Payment for Ecosystem Services - Forest Diversity Programme METSO - in Finland

Finland indicated[1] that payment for ecosystem services (PES) is a type of environmental policy instrument that gives the owner of a natural resource some direct incentives to manage it in society's best interest.

A report on PES was commissioned by the Working Group on Environment and Economics under the Nordic Council of Ministers (http://www.norden.org/fi/julkaisut/julkaisut/2009-571). The report provides an overview of current theory and experiences from the use of PES. Several examples of PES already exist in the Nordic countries, most of which aim to preserve biodiversity or reduce nutrient runoff. The report shows that there is scope both to improve and expand the use of PES in the Nordic countries.

Targeted and differentiated payments, for example by using competitive tendering where land owners have to reveal their compensation levels and ecosystem services they can offer, is a promising approach. The use of PES may also be expanded, for example into areas where regulation traditionally is perceived as very negative by land owners, or used in combination with existing regulation.

Forest Diversity Programme METSO

Introduction

Finland is the most forested country in the EU. More than two-thirds of the country is covered by forest, and large parts consist of small holdings owned by local families. Most privately owned forests are located in the south while state owned forests are located in northern Finland. In the north 28.6 percent of the land is protected, compared to only two percent in the southern parts of the country.

The Forest Biodiversity Programme METSO, initiated in 2008 and running until 2020, enhances Southern Finland's network of protected areas and safeguards forest biodiversity in privately-owned forests across the region. METSO aims to halt the ongoing decline in forest biotopes and species and establish stable favourable trends in forest biodiversity by 2020. METSO is both an acronym for the programme and the Finnish name of the capercaillie, a primitive old growth forest bird. It is based on the experience gained during the implementation of the programme's pilot phase in 2002-2007 and encourages stable favourable trends for Southern Finland's forest ecosystems. METSO was approved in 2008 together with a new National Forest Programme for 2015. It is a collaborative effort between Finland's Ministry of the Environment and the Ministry of Agriculture and Forestry.2

[1] Finland (2011). Submission on incentives, December 2011

[2] METSO Factsheet 2010, Ministry of the Environment and Ministry of Agriculture and Forestry, Finland, 2010.

The programme is an example of a payment for ecosystem services (PES) scheme where protected areas are designated based on voluntary conservation agreements between authorities and forest owners. Conservation is based on forest owners' voluntary competitive tendering. Authorities compare tenders and choose the most suitable sites and negotiate conservation agreements with the forest owner. Agreements can be of temporary or permanent nature, depending on the nature of the conservation site in question.3

Measures under the METSO Programme:

- Ecological site selection criteria
- Restoration and nature management of habitats in protected areas
- Development of Finland's network of protected areas
- Safeguarding biodiversity in privately-owned forests
- Cooperation networks
- Organisation of natural values trading and related cooperation
- Habitat management measures in commercially managed State
- forests
- Ensuring biodiversity in municipal recreation forests and national hiking areas
- Advice to forest owners and training of forest professionals
- Communications
- Improving the knowledge base
- Developing monitoring, information systems and statistics
- Inventories of habitats and species
- Monitoring and evaluation of the Programme

In total, the programme defines ten forested habitats to be potentially preserved. The site selection criteria define which habitats are to be protected under the programme. It covers the most important habitats and structural features in Finland's forests in terms of biodiversity. Another important criterion is the proximity of potential sites to the current network of protected areas and impacts on economic or social activities.

Forest owners are compensated according to the Nature Conservation Act (1096/1996) or the Act on the Financing of Sustainable Forestry in the Finnish legislation (1094/1996). Some areas can also be purchased by the State to be designated as permanently protected areas. Measures under the programme are financed through the annual framework budgets allocated to the Ministry of the Environment and the Ministry of Agriculture and Forestry. To date, funding of up to €182 million until 2012 has been put in place. As over 75% of forests are owned by 600.000 non-industrial private forest owners in Southern Finland (61% of the whole country), the funds of the programme are mainly channelled to private forests owners, forest companies, municipalities and congregations.4

Benefits

The METSO Programme has applied new forestry methods for commercially managed forests based on a forest-owner-centred approach. It represents a departure from centralised governing of nature conservation to an emphasis on voluntary conservation contracts between forest owners and authorities. Forest owners benefit from independent decision-making and the possibility to retain their property rights in the available conservation schemes.

The aim is to:

- Advance social acceptability of forest biodiversity conservation and minimize conflicts between landowners and nature conservation authorities;
- Improve the forest owner's attitudes towards biodiversity conservation;

[3] Government Resolution on the Forest Biodiversity Programme for Southern Finland 2008-2016 (METSO), Finnish Government, 2008.

[4] The Forest Biodiversity Programme for Southern Finland (METSO) 2008-2016, Ministry of the Environment and Ministry of Agriculture and Forestry, Finland, 2010.

- Increase economic cost-efficiency in biodiversity through a PES mechanism, as the bidding system by forest owners for conservation agreements with authorities lowers information rents and thereby the size of PES.[5]

Examples of voluntary incentive-based measures in METSO

Several voluntary incentive-based measures to safe-guard biodiversity in Finnish forests have been tested under the METSO programme.

Under the nature values trading scheme forest owners were given the opportunity to set aside forest areas for conservation and receive compensation for foregone revenue. Participation in the scheme was always voluntary for the forest owner, and they were given the chance to present their views on the compensation to be paid. Price and terms of the contract were negotiated on a case-by-case basis, and if the forest owner and the Government agreed, the forest owner could enter into a fixed-term contract lasting for 10 to 13 years. When the contract period ends, the forest owner is free to manage the area according to his own wishes.

A cooperation network were created in order to promote innovation, cooperation and interaction, and to create new operating traditions in biodiversity conservation. Land owners, local authorities and NGOs are participating in the network, and the idea was to protect biodiversity on a local level based on voluntary participation and land owner's own initia-tive. Cooperation projects could for example be connected to a national park, a hiking or recreational area or commercial forests. There is no requirement that the cooperation project area is continuous or clearly defined, but all land owners wanting to participate in order to enhance biodiversity conservation were allowed to take part in the network (Horne et al., 2009).

Competitive tendering

As a part of METSO's aim to preserve valuable forest habitats, competitive tendering was introduced as a way of increasing the network of protected forest areas. Key features of the scheme are presented in Table 1. The ES delivered by forests are numerous, including biodiversity, carbon sequestration, water purification, reindeer husbandry, game, berries, mushrooms, lichen aesthetic, recreational and spiritual services. Habitats identified as especially important are heathland forests with plenty of decaying wood, herb-rich woodlands, spruce mires, swampy woodlands, sunlit esker slopes, wooded pastures and meadows, and natural forests along emerging coastlines.

The establishment of conservation areas by the use of competitive tendering is an example of contractual nature conservation. The scheme is government financed as the government act as the buyer of the ES, and the scheme is voluntary for both contracting parties. The forest owner will only make a tender he or she finds satisfactory, and the government will only accept tenders providing the kind of ES they are looking for at an acceptable price. Forest owners are paid for conservation actions that are intended to lead to the provision of demanded ES, which means that the sellers are paid for a proxy of ES. Contracts may be for a fixed term, where it in practice is established as a privately owned nature conservation area, or the state can purchase the site as a nature conservation area. Which method that is chosen depends on the characteristics of the site, its location and the forest owner's tender proposal.

[5] The Forest Biodiversity Programme for Southern Finland (METSO) 2008-2016, Ministry of the Environment and Ministry of Agriculture and Forestry, Finland, 2010.

Biodiversity of forests is the ES that is primarily targeted through this scheme, but there is a wide range of additional ES being provided through conservation activities. Many of these ES will be delivered even though the ES buyer does not target these services specifically.

Intermediate products and final products expected to be delivered from the ES that are provided is dependent on which beneficiaries that are being considered. Seen from a hunters perspective intermediate products may be improved hunting areas and final service the game population. Both tourists and local population may value new and/or improved hiking and recreational areas as intermediate products, and barriers, mushrooms etc as final products. For a population that values a high level of biodiversity, the various regulating and supporting functions in a protected forest and the provision of habitats and favourable conditions for flora and fauna make up the intermediate products.

Beneficiaries enjoying the ES resulting from increased forest conservation are only paying for the provision of the ES through the national tax system. This means that the Finnish government is paying for the provision of ES on behalf of the whole Finnish population even though forest conservation is taking place in certain parts of the country. Based on this, beneficiaries can be said to be the whole Finnish population (e.g. for the non-use value related to biodiversity conservation), but in practice local and regional population probably benefit most.

When it comes to the issue of property rights, the forest owner and ES seller have most of the property rights. Before entering into a conservation contract the forest owner has the right to access the forest (access right), the right to extract timber and cut the forest (right of withdrawal), the right to decide how the forest is managed and change management patterns (management right) and the right to transfer his property rights to others (right of alienation). The forest owner does however not have the right to decide who can access the forest (right of exclusion). The buyer who in this case is the government has little legal right to interfere with the forest owner's management or clear-ing decisions in order to improve biodiversity conservation without tak-ing over his or her property rights. The traditional approach to nature conservation in Finland has been for the government to set ecological goals and then acquire the required sites to reach these goals. This approach has certainly not been appreciated by forest owners, and has often led to conflict.

The link between the proxy that it is paid for (conservation of forest) and the ES that is demanded (biodiversity) is well documented, and the site selection criteria used to determine which tenders that are accepted are based on nature conservation biology and prepared by an expert working group appointed by the Ministry of Environment. Seven habitats especially important for biodiversity are identified: heathland forests with plenty of decaying wood, herb-rich woodlands, spruce mires, swampy woodlands, sunlit esker slopes, wooded pastures and meadows, and natural forests along emerging coastlines. The sites ecological structure, extent and location are also taken into account. Sites containing habitats that are well preserved in their natural state or can easily be restored, sites that host rare or endangered spices or sites that are close to already protected areas are especially favoured. On a smaller scale there is particular focus on conserving forests that are rich in biodiversity because they contain features like: dying wood, burnt or charred wood, mature broad-leaved trees, large aspen trees, nutrient rich soils, and springs, brooks and other natural water features.

Finish legislation puts some obligations on forest owners related to conservation of biodiversity in commercially managed forests. In addition, many forest owners already conserve biodiversity in their forests by leaving set-asides or manage some areas based on environmental goals on their own initiative.

A PES scheme paying for these kinds of action may suffer from weak additionality because it may pay for biodiversity conservation that would have been carried out anyway.

Permanence is assured for the duration of fixed-term contracts, but at the end of the contract the forest owner is free to manage the forest according to personal interests. Because forest owners can choose to conserve part of their forests and continue to commercially manage other parts, the possibility exist that conservation in one area lead to increased clearing at another location. This may lead to leakage effects.

Table 1. Overview of a Forest Conservation PES scheme – Example from Finland

Name of PES scheme	METSO, the component of competitive tendering
Ecosystem service aspects	
Type of ecosystem	Forest
ES or benefits to be delivered	Preserve forest habitats valuable to halt the ongoing decline in biodiversity
Type of services (provision, regulating, cultural, supporting)	Provisioning (reindeer husbandry, game, berries, mushrooms, lichen etc.), regulating (biodiversity, carbon sequestration, water purification etc.) and social & cultural (aesthetic, recreational, spiritual etc.)
Kind of value (direct use, non-use, indirect use)	Direct use (reindeer husbandry, games, barriers, mushrooms, aesthetic, recreational, spiritual etc.) and indirect use (water purification, carbon sequestration etc.) Non use from knowing biodiversity is preserved
Type of good (club, open ac-cess, pure public)	Pure public (e.g. biodiversity), club good (hunting), common property resources (berries, mushrooms etc)
Institutional set up	
Beneficiaries	Local, regional and national users such as reindeer farmers, tourists, hikers, and hunters
Suppliers	Primarily private forest owners but some state owned forest is also included in the project
Distribution of rights	Forest owners have the rights of access, withdrawal, manage-ment and alienation
PES programme characteristics	
Land use or practice paid for (linked to ES or benefit)	Payment to conserve areas corresponding to criteria set by the authorities. In practice conservation is obtained either by estab-lishing a privately owned nature conservation area through a fixed-term agreement or by the state purchasing the area as a nature conservation area.
Kind of payment	In a tender the forest owners present basic information on the site and reveal personal views on compensation or sales price. The government then chooses the offers that provide most of the ecological services they want at an acceptable price. Protection means, delimitations and level of compensation are subject to negotiations.
Who are the buyers? (ES users, government, other?)	Finish government
Who administers the program-me?	The Ministry of the Environment and Ministry of Agriculture

	and Forestry
How are sellers of ES selected?	An expert working group appointed by the Ministry of the Envi-ronment has prepared ecological criteria based on forest struc-tures and habitat types important for biodiversity. Location of a site in relation to other protected areas is also important.
Other requirements	Regional factors including impacts on local businesses, recrea-tion, tourism and cultural values are also considered.
Scale of programme (local, regional, national, global)	Regional
Monitoring	A special monitoring group is assigned to review how well re-sources have been allocated and assess the need for further resources. Impacts of the actions of METSO will also be moni-tored.
Sanctions	No sanctions are known.

Impacts

The programme aims to protect over 96.000 hectares of ecologically valuable forests by establishing permanent conservation areas and making fixed term conservation contracts (20 years) on private lands or by acquiring land by the State. In addition, 82 000-173 000 hectares of sites with natural values will be preserved in commercially managed privately owned forests by making environmental forestry subsidy agreements (10 years) or by nature management work. Up until 2010, over 30.000 hectares of state-owned forests and mires inside conservation areas have been restored. METSO also has increased the number of existing protected areas to include a total area of 10.000 hectares of state-owned commercially managed forest previously designated for conservation. The state forestry agency Metsähallitus also drafted land use plans to prioritise the conservation of biodiversity in ecologically important areas, aiming to expand and interlink forest areas of value to biodiversity.[6]

From 2008 to 2009 alone, METSO yielded 3,661 hectares of strictly protected areas, totalling a compensation of €17 million. This includes former commercially managed forests owned by the state and areas offered for protection voluntarily by landowners. During this period, another 18.900 hectares have been conserved in privately-owned forests with other policy instruments. These include the financing of sustainable forestry, nature management of commercially managed forests, and environmental subsidies. The restoration and active management of ecologically valuable forest habitats within protected areas is another important way to help safeguard forest biodiversity in Southern Finland. During the period 2008–2009 Metsähallitus Natural Heritage Services has purposefully managed and restored 6.400 hectares of forest habitat in protected areas. Ecological inventories of protected areas have additionally continued, covering 18.000 hectares over the two-year period.[7]

METSO also supports forest conservation in municipalities. An increasing number of municipalities have started mapping valuable natural sites in their forests according to the programme selection criteria. METSO offers financial support to protect these sites.

[6] Interim assessment of the METSO Forest Biodiversity Programme for Southern Finland – English summary, Ministry of the Environment and Ministry of Agriculture and Forestry, Finland, 2010.

[7] Results of the Evaluation of the METSO Programme 2008-2009, Ministry of the Environment and Ministry of Agriculture and Forestry, Finland, 2010.

The collaboration between forestry and environmental organisations will be further improved and official advisory services for forest owners will be developed. Forestry-related training and communications will be enhanced. Additionally, research and monitoring will be advanced to improve the knowledge base on forest biodiversity and to help in determining the best ways to preserve it. Under the programme, €2 million per year are allocated to support both basic and applied research on forest biodiversity.[8]

Lessons from the METSO case[9]

Because the first phase of the METSO programme has been carried out in limited pilot areas, total impact from the use measures involving voluntary commitments will not be evident before the measures are applied to larger areas. Many ES also evolve over long time and impacts on biodiversity are not readily available yet. Still, preliminary results and experiences from the first phase of the METSO programme (2003–2007) were considered when the new METSO programme was prepared for 2008–2016.

The fact that conservation measures were carried out on a voluntary basis has contributed to making conservation more acceptable to forest owners, and also to improving the public opinion on forest conservation. It has been suggested that one of the programmes biggest achievements is that it has led to a more positive attitude towards conservation.

Main criticism of the first phase of the METSO programme has been related to the lack of clear targets concerning preferred conservation area, low involvement of forests owned by the state or municipalities, and in-sufficient knowledge of which areas outside existing conservation areas that are especially ecologically valuable. Still, evaluation of the METSO programme has concluded that the use of voluntary conservation meas-ures should be expanded. As a part of this, METSO should ideally also be developed to cover all the habitats identified as especially valuable for biodiversity, and to cover larger or better connected conservation net-works. This might however be difficult to secure through these voluntary measures. However, interest from forest owners has been considerable, indicating that significant areas of forest could be protected by the use of voluntary measures.

The use of fixed-term contracts has been criticised for being an uncertain solution in the long run. If the result of this is that conservation sites is constantly changing, the effectiveness of the conservation will be smaller than if sites were conserved permanently. Short fixed-term contracts are not compatible with the fact that populations that do not spread easily are dependent on stable conditions in order to survive. In addition, ecological features like wood decay continuum and dead but still standing trees take a long time to develop. This kind of features is important in the site selection criteria. At the same time, short time con-tracts targeting habitats with temporary ecological values (like fire sites) or habitat in need of active management can be a good solution. Most forest owners also prefer contracts that do expire, and that gives them the opportunity to maintain property rights and the option to alter manage-

[8] Interim assessment of the METSO Forest Biodiversity Programme for Southern Finland – English summary, Ministry of the Environment and Ministry of Agriculture and Forestry, Finland, 2010.

[9] Nordic Council of Ministers (2009). Payment for and Management of Ecosystem Services: Issues and Options in the Nordic Context, by Marianne Zandersen, Kirsten Grønvik Bråten and Henrik Lindhjem, a report on PES commissioned by the Working Group on Environment and Economics under the Nordic Council of Ministers (http://www.norden.org/fi/julkaisut/julkaisut/2009-571).

ment decisions in the future. Forest owners would however prefer a sys-tem where the state is obliged to continue the contract if the forest owner wishes to do so.

Evaluation results also point out that attention should be given to linking compensation paid more closely to ecological values and ES generated. This would give forest owners an incentive to enhance generation of such values.

Way forward

The METSO Programme has shown the benefits a flexible harmonisation of different forms of forest use and voluntary, state-subsidised protection of forest resources. Its new bottom-up and voluntary approach to conservation in return for financial compensation has raised the interest of private forest owners.

The large pool of involved actors (i.e. private forest owners, forest industry, NGOs, forestry organisations and interest groups, researchers and authorities) has increased acceptance, importance and political reliability of the programme.

Summary

Through the METSO programme in Finland, various voluntary meas-ures have been tested as a way to preserve biodiversity. The voluntary measures have been welcomed by the forest owners, and the programme received more offers on sites for participation than it had funding for. From 2003 until late 2006, 268 contracts were agreed upon, and almost 2000 hectares of forest were protected. The vast majority of the land in-cluded was protected through fixed-term contracts. This has led to some criticism due to the uncertainty related to how this will effect forest pro-tection in the long run. Still, the METSO programme has been extended until 2016, and further use and development of the voluntary measures are a part of this. The voluntary aspect of the programme has been poin-ted out as an important factor in changing people's attitude towards con-servation in a positive direction.