

**Valuation and Compensation Methods for
Non-wood Forest Goods and Services**

Report to the Standing Forestry Committee

by the Standing Forestry Committee ad hoc Working Group on Valuation and Compensation
Methods for Non-wood Forest Goods and Services.

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Standing Forestry Committee ad hoc Working Group on Valuation and Compensation Methods for Non-wood Forest Goods and Services.

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Executive summary

During the preparation of the EU Forest Action Plan¹ specific attention was requested to be given to non-wood forest goods and services. Therefore and in order to implement the Key Action 3 of the EU Forest Action Plan aiming to "Exchange and assess experiences on the valuation and marketing of non-wood forest goods and services", a Standing Forestry Committee ad hoc Working Group on valuation and compensation methods for non-wood forest goods and services has been set up in June 2007.

The Working group collected information through presentations prepared by the WG members on country and stakeholder group experiences completed by a few commissioned presentations from the Commission and MS not represented in the WG. These presentations covered overviews of individual country experiences, specific national and international projects, COST actions and briefings on support measures provided by Rural Development Programmes (RDP) and State Aid rules.

In the EU, depending on national legal frameworks, the access to and the use of the majority of non-wood forest goods and services is unlimited and free for the public. Nevertheless experts expect these goods and services to further increase in importance. Its values may vary between different stakeholder groups depending on location, the goods and services and with scale. There is a long tradition of valuation of non-wood forest goods and services in several EU Member States but this is mainly for single services, habitats or species. Integrated approaches are rare and valuation often looks at the value at a small scale or for marginal values. The majority of available valuation studies and values concentrate on recreation and biodiversity services, mainly carried out in Nordic countries and Western Europe. Valuation of non-wood forest goods and services and benefit transfer in many cases remain controversial, due to reservations over their usefulness and the technical feasibility of existing valuation tools. It appears to be necessary to intensively discuss the appropriateness of already existing values and underlying valuation approaches with potential users and implementers. Valuation methods should be improved towards a more integrated valuation taking into account that several non-wood forest goods and services are usually provided jointly and simultaneously.

There is a wide range of mechanisms for financing provision of forest goods and services that are in use, public payment schemes (direct financial support or indirect through tax exemption or reduction) prevail by far, followed by private mechanisms (market based schemes like purchase of forest goods and services), which grow in importance.

State financial resources are often not sufficient to be effective in all cases. Situations where the market can play a role in the provision of goods and services should thus be stimulated, while keeping public payment schemes. A clear trend towards mechanisms using fiscal systems, sponsorship and subsidy allocation by ways of auctioning already can be observed. Nevertheless, the creation of markets and especially local contractual systems should receive increased attention and support.

Besides awareness of the problem, a pre-requisite for establishing a payment scheme is the existence of institutional and political support. Decreasing timber prices and lower incomes

¹ COM (2006) 302 final.

available to maintain the forest resource in a good state may raise interest in non-wood forest goods and services from the side of the forest owner.

Room exists for actions on political-institutional systems as well as enterprise development for innovation and enhancement of the marketability of non-wood forest goods and services. Good examples are applications of voluntary instruments for nature value trading (competitive tendering) and incentives for the provision of recreational and aesthetic values on a contract basis. Constraints in the creation of markets are often related to high transaction costs and/or the legal and socio-economic framework, such as the open access to forests and everyman's right. Also, people may not be aware of the real value of non-wood forest goods and services and expect to use them for free. In general, society may be willing to pay for non-wood forest goods and services, but operational mechanisms supporting valuation and financing remain comparatively rare due to low interest or limited information and are not fully reflected in forest policy. To achieve a better recognition of non-wood forest goods and services, extend its financing and marketing efforts, land owners and managers, their interest groups and extension services need to raise more strongly the awareness of decision makers and the general public on the issue.

The introduction and early stages in the implementation of new financing mechanisms can be difficult due to the need for innovative processes and the coverage of the initial costs. Any new mechanism needs to build on existing mechanisms in promoting sustainable forest management. As the values and importance of non-wood forest goods and services differ between member states it is difficult to introduce specific payment schemes other than on member states or regional level.

The engagement of actors at the political-institutional level seems necessary for further development of public and private mechanisms and to facilitate innovation introduced by land owners and forest users. However, the public good characteristic of many non-wood forest goods and services has and will continue to restrict their marketability in the future.

To improve valuation and specifically the introduction and implementation of financial returns for the provision of non-wood forest goods and services, the Working Group has identified seven focus areas for action and recommendations:

For the SFC to recommend the **Commission and MS**

Focus area: Strategy and planning

- Develop a vision of the desired provision of non-wood forest goods and services building on sound data on demand, supply and appropriate payment schemes
- Discuss and provide guidance in implementing improved valuation methods for non-wood forest goods and services in order to foster acceptance and practical applications of research findings
- Develop and support communication strategies for the multiple goods and services forests provide as integral part of overall forest policy strategies, using the knowledge and existing infrastructures in the sector

Focus area: Rural Development Programmes

- Assess the implementation of rural development programmes regarding measures addressed to the provision of non-wood forest goods and services and exchange experiences in the SFC and between MS

- Consider non-wood forest goods and services when setting up capacity building, education and training programmes
- Explore the possibilities to support the introduction of innovative schemes like contractual systems for the provision of non wood forest goods and services in rural development programmes.

Focus area: Information needs and awareness raising

- Incorporate monitoring of the provision and financing related to non-wood forest goods and services into existing and/or newly developed forest monitoring systems at a regional, national and international level
- Promote better understanding and awareness of successful valuation and payment schemes at national, international and inter-sectoral level using, when appropriate, existing information and communication channels incorporating all relevant actors

Focus area: Research

- Enhance the accuracy of monetary estimates of the value of goods and services as well as their cost of provision and analyse the reliability of benefit transfer
- Further explore the wider influence of non-wood forest goods and services on regional economies, including outdoor recreation and personal and societal health benefits provided by forests
- Explore the efficiency of different financing mechanisms for non-market forest goods and services, with special regard to contractual arrangements

For the SFC to recommend **MS and regions** to look into

Focus area: Strategy and planning

- Work on a better integration of forest related goods and services in spatial and land use planning and development at national, regional and local level
- Foster stakeholder involvement and dialogue by establishing inter-sectoral negotiation bodies for non-wood forest goods and services to promote communication and the coordination and coherence of related policies and plans
- Consult forest users, including forest-based industry, in the development of NWFG&S strategies and mechanisms for enhancement of marketing of hitherto non-market benefits

Focus area: Payment schemes

- Consider policies for the development and implementation of payment schemes preferably on market basis, and support new and innovative mechanisms like contractual instruments
- Review existing mechanisms and payment schemes to ensure that forest service providers are benefiting from application
- Provide guidance in implementing payment schemes for the provision of non-wood forest goods and services in order to facilitate the broader use of successful payment schemes

Focus area: Market development

- Support innovation, product development and entrepreneurship connected to the provision of non-wood goods and services and explore options for forest owners to benefit from such value adding

- Further apply public payment schemes where the public nature of non-wood forest goods and services is likely to continue restricting marketability in the future
- Promote pilot initiatives to function as lighthouse projects in order to foster broader application of successful efforts in marketing of non-wood forest goods and services

1. Introduction

Forests create multiple benefits, providing renewable raw materials for environmentally friendly products and play an important role in economic prosperity, biological diversity, the global carbon cycle, water balance, erosion control and the prevention of natural hazards. Forests contribute to environmental stability and offer social, ecosystem and recreational services.

While wood production has traditionally been at the centre of forest management, the impact of socio-economic and environmental changes in the past three decades has stimulated interest in non-wood forest goods and services. Driving forces have been on the one hand income short falls from timber and on the other hand increasing demand for other goods and services e.g. recreation, biodiversity and other environmental safeguards related to forests. This is evident not only from numerous regional, national and international studies on forest goods and services, but also in a number of EU policy documents: The EU Rural Development Regulation² for instance seeks to enhance the amenity values of forests and supports the diversification of forest enterprises and investments to secure non-market public benefits from forests. Stakeholders identified the quantification of the costs and benefits of the provision of social and ecological services from forests as one of the emerging issues in a report on the implementation of the EU Forestry Strategy³. During the preparation of the EU Forest Action Plan⁴ several inputs from EU institutions, independent experts and Member States requested that specific attention be given to the valuation and compensation of non-wood forest goods and services. Consequently, under the overall objective "to support and enhance sustainable forest management and the multifunctional role of forests and to improve the long-term competitiveness of the forest sector", the EU Forest Action Plan stipulates in its Key Action 3 to "Exchange and assess experiences on the valuation and marketing of non-wood forest goods and services". Furthermore, the Ministerial Conference on the Protection of Forests in Europe (MCPFE) has included the element "Multiple Forest Ecosystem Services, including Forest and Water" in its work programme⁵.

To implement the Key Action 3 of the EU Forest Action Plan and in order to facilitate collection and dissemination of experiences on the valuation and marketing of non-wood forest goods and services (NWFG&S), the Commission together with the Standing Forestry Committee, set up an ad hoc Working Group (WG) in June 2007. The group was made up of experts nominated by the Member States (MS) and relevant stakeholder groups as well as a representative of the MCPFE. The list of members and dates of meetings can be found in Annex 3.

According to the terms of reference for the WG (see Annex 4) the general objectives are:

- exchange information on the state-of-the-art for the valuation of non-wood forest goods and services;
- identify methods and existing practices for compensation for non-wood forest goods and services;

² COM (2005) 1698 final.

³ SEC (2005) 333 Annex to COM (2005) 84 final.

⁴ COM (2006) 302 final.

⁵ MCPFE Work programme, Pan-European Follow-up of the 5th Ministerial Conference, November 2007, Warsaw, Poland.

- exchange information on approaches for establishing new markets for, and marketing of non-market forest goods and services;
- discuss the need for, and applicability of innovative mechanisms for valuation and compensation for non-wood forest goods and services;
- identify good practices, draw conclusions and present proposals for possible further action.

This report is divided into six parts: introduction, scope of work, overview of non-wood forest goods and services, experiences in valuation and compensation for non-wood forest goods and services: case studies from EU Member States, overall conclusions and recommendations.

2. Scope of Work

The WG met on seven occasions between 28 June and 14 November 2008. On the basis of the discussions during the first WG meeting, a draft list of relevant topics was drawn up (for the full list see Annex 5). The WG agreed that it should concentrate on exchanging information and sharing experiences on valuation and compensation mechanisms already applied in the Member States as well as examining innovative approaches to the marketing of NWFG&S. Furthermore, it was agreed that special attention should be paid to the valuation and compensation for provision of biodiversity and water services.

The WG collected information through presentations prepared by the WG members on country and stakeholder group experiences with a few commissioned presentations from the Commission and MS not represented in the WG. These presentations covered overviews of individual country experiences, specific national and international projects, COST actions and briefings on support measures provided by Rural Development Programmes (RDP) and State Aid rules.

A full list of presentations can be found in Annex 6. There are reports for all meetings and copies of all WG documents including presentations posted on the CIRCA site for the Working Group (<http://www.circa.europa.eu>).

In 2008 the Commission also launched a study on non-marketed forest goods and services (FORVALUE)⁶. The study was conducted in close exchange with the ad hoc Working Group through frequent updates given to the WG by the contractor and contributions by the WG members to the gathering of information for the study.

3. Overview on non-wood forest goods and services

3.1 Goods and services

Before commencing any discussion of non-wood forest goods and services, it is first necessary to define what goods and services are provided by forests, secondly how to measure them (in quantitative terms) and lastly how to place an economic value on them. There are many ways of classification, each with its own merits and there is no one definitive typology

⁶ FORVALUE – Study on the development and marketing of non-marketed forest products and services, 2008; to be published

which lent itself to the purpose of the WG. It was also found that there was no need for the WG to do more than recognise the broadest categories of goods and services. The FORVALUE study⁵ launched by the EU Commission discusses different approaches to classification and provides lists of non-wood forest goods and services. A compiled list of goods and services can be found in Annex 2.

The next step was to recognise the ecological functions which underpin the goods and services and the importance of forest services in sustaining ecosystems and hence human systems. Early references to the concept of ecosystem functions and services and their economic value date back to the mid-1960s and early 1970s and since then a vast number of research articles and reports have identified and defined non-market forest goods and services.

Notwithstanding the above two classifications have to be pointed out in the context of this report:

One way to structure forest goods and services is according to its public / private nature. This typology is most often used to identify or to design appropriate mechanisms for ensuring that provision of goods and services is equitable. Table 1 shows that a classification in terms of excludability⁷ and rivalry⁸ can be used to identify four markets for forest goods and services. This classification also helps to explain why markets have not developed for some goods and services, particularly those classified as public goods.

Table 1. Classification of public and private goods and services			
		Excludability⁷	
		Low	High
Rivalry⁸	Low	Public (unlimited access and collective consumption)	Toll or Club goods (limited access, collective consumption e.g. horse riding trails)
	High	Common-pool (unlimited access but private consumption e.g. game)	Private goods (limited access and private consumption e.g. timber)

Another noteworthy classification was developed by Working Group 3 of the COST Action E 30⁹, which considered the relationships between rural suppliers and urban demand for forest goods and services. This study inter alia identified goods and services that are:

1. Traditionally important (important in the past but with diminishing use, e.g. resin, fodder, bark etc.),
2. Traditionally and currently important (mushrooms, berries etc. but also some popular outdoor activities such as nature tourism and forest recreation e.g. cycling, walking, hiking, cross-country skiing etc.),

⁷ The extent to which an owner can prevent someone from enjoying the benefits of a good or service.

⁸ The extent to which enjoyment of the benefits of a good or service reduces the benefit to a third party. High rivalry is for example, eating a berry means no-one else can eat it while low rivalry is exemplified by looking at a view which does not reduce its beauty for someone else.

⁹ COST Action E 30: Integration of urban consumers' demand and rural forestry production; Working Group 3: Non-wood forest products and services; <http://www.joensuu.fi/coste30/WGs.html>

3. Newly important (environmental services such as drinking water and protection;, and expanding recreation and nature tourism activities such as horseback riding, mountain biking, wildlife tourism etc.).

Comparative estimates of the importance of forest goods and services at an EU level are difficult. Huge differences and ranges in availability or scarcity of NWFG&S exist, caused by different socio-economic frameworks. Case specific survey approaches and local, regional or national conditions often determine the composition of available figures. Aggregation at a greater scale can obscure such differences and result in misleading conclusions. Nevertheless, it is worthwhile to note that of all NWFG&S, at EU level experts quote biospheric services (i.e. biodiversity protection, climate regulation) as being the most important, followed by ecological and social services¹⁰.

3.2 Valuation and values

Different benefits usually accrue to different groups of people. It must also be realised that the same good or service may hold different values for different people. Table 2¹¹ is provided below to illustrate the links between the forest goods and services and their users according to the type of value which they represent to individual groups of users.

Table 2. Possible types of economic value commonly identified in the literature and links to the classification of forest goods and services				
Use value			Non-use value	
Direct use value	Indirect use value	Option value	Existence value	Bequest value
Extractive, consumptive or structural value, mainly derived from goods that can be extracted, consumed or enjoyed directly	Services that the environment provides	Value attached to maintaining the possibility of obtaining benefits from ecosystem goods and services at a later date, including from ecosystem services that appear to have a low value now, but could have a much higher value in future because of new information and knowledge	Value people derive from the knowledge that something exists, even if they never plan to use it	Value derived from the desire to pass on ecosystems to future generations
<i>Material goods Cultural and amenity services</i>	<i>Regulating services Supporting services</i>	<i>All services</i>	<i>All services</i>	<i>Supporting services</i>

Two general categories of non-market economic values can be identified: use values (including option value as a form of possible future use), which apply to the benefits a resource produces for those who actually use it, and non-use values, which are ubiquitous

¹⁰ FORVALUE Study on the development and marketing of non-marketed forest products and services, 2008, preliminary results (to be published)

¹¹ Smith, M., de Groot, D. and G. Bergkamp (eds.). 2006. Pay: Establishing payments for watershed services. IUCN, Gland Switzerland; modified.

values that do not require a conscious intent to use and no physical interaction with the forest need take place.

The distinction between use and non-use values is not well defined and may not always be clear particular for services of a personal nature. Use values for services may include recreation, aesthetic appreciation, and spiritual values. Non-use benefits can be subdivided into existence value (the satisfaction of simply knowing a resource exists), altruism (the value derived from knowing other people are making use of a resource) and bequest value (preserving a resource for future generations).

Economic principles applied to provision of ecosystem services are often used as the basis for the development of compensation mechanisms. Economic valuations are often used to set the scale of any compensation. This incorporates a variety of approaches applied but no consensus on the 'best' method. The choice of method largely depends on the context and nature of the ecosystem services to be taken into account as well as the limits imposed by available funding.

Deriving values for direct, extractive uses from market data is relatively straightforward but becomes increasingly difficult as values become less market-based with indirect non-extractive benefits being the hardest to quantify. For the latter there are instances when market data can be used as a surrogate for the value (e.g. a regression estimate based on the correlation between the non-market benefit and some actual expenditure related to use of the forest good or service) but more usually non-market valuation techniques are used.

In environmental economics, values can be estimated directly in monetary terms through application of an individual's willingness-to-pay (WTP) or willingness-to-accept (WTA) compensation. Of these two alternatives, the WTP approach is the most frequently applied and is a class of techniques which use a range of survey formats to generate measurable pseudo market values for non-market resources. The classic approach involves directly asking people to state how much they would be prepared to pay for a service in a social survey format called contingent valuation (CV). The value of environmental goods can also be quantified using market values which reveal preferences for specific services. Classically this is used to estimate recreation values from the costs incurred to travel to specific sites (travel costs (TC) method). In this approach the costs of travel are used as a proxy for price. Moreover, the benefits of a wooded landscape viewed from a house or access to a forest recreation area can indirectly be assessed by using information about property prices in relation to proximity to trees or woodland in a city or in specific neighbourhoods (hedonic pricing (HP) method).

Choice experiments offer a new way forward in the field of environmental valuation. The approach is based on the notion that attributes of an environmental good can be used to understand the general trade-offs which an individual is willing to make. In the choice experiments approach respondents are asked to choose between alternative goods, defined in terms of their attributes.

The methods available for valuation are all rather costly to undertake and are usually site specific and there is some hope that it may be possible to develop techniques to extrapolate these values to generate more generic values. However, the search for generally applicable models for valuing non-market environmental goods and services implies more than just a technical solution to the transfer of values between sites, ecosystems and human populations.

The question of what these values reflect and hence their potential use in different policy contexts is fundamental to the future social-political acceptability of econometric models for forest benefits.

3.3 Market failures

A market failure occurs when the allocation of goods and services by a free market is not efficient, i.e. when the market cannot supply a good or service that is being demanded by society, when existing markets are insufficient or inappropriate pricing occurs. The main sources of market failures which are particularly relevant to an analysis of environmental resources are:

- externalities;
- inappropriate pricing;
- (i) unpriced assets and (ii) missing markets;
- transaction costs for public goods;
- ill-defined or un-enforced property rights;
- lack of information and uncertainty of values;
- short-sightedness;
- irreversibility.

An externality arises when a mutually beneficial transaction between two or more parties results in a third party i.e. someone who is not the buyer or seller is affected by the transaction i.e. made either better or worse off. In forest management positive externalities are assumed to dominate but negative externalities may also occur. A quantitative analysis of externalities would require that third parties can be precisely identified and that the losses or benefits can be valued in monetary terms.

Markets do not exist, or are incomplete for many environmental goods and services; for example clean air, landscape quality, biodiversity and open access resources, such as berries, mushrooms, fish stocks and in some cases firewood and wild game.

However, although the price of timber, the most traditional and commonly used forest good, and other traded non-wood forest products, such as honey, berries, mushrooms have been part of the economic sector, in many parts of Europe for centuries, no pricing mechanism has been applied for the increasingly recognised other non-wood, goods and services. This has two consequences. Firstly, in the absence of markets for environmental and social goods and services, forest owners and managers do not receive monetary remuneration for the provision of them. Secondly, the majority of these goods and services are, from the economist's point of view, undervalued because they are public goods available (to various degrees) to all.

Although some benefits are provided free of charge, this does not necessarily mean that they are not valued by beneficiaries. In fact, several services like e.g. free access to forests or collecting rights are often looked upon to be of fundamental importance and are fiercely protected and exercised with care. However, the absence of monetary values for many forest goods and services coupled with free availability may misinform users about the actual monetary value of these services and more importantly that their provision may incur costs for their provider. Moreover, if no, or inappropriate monetary values are assigned to a particular good or service, no signals are sent to the users encouraging them to appreciate and make

better use of them. In addition, governments may overlook the necessity to consider non-wood forest goods and services in planning and legislation.

3.4 Payment mechanisms and financing

Payment mechanisms for many non-market forest goods and services are mainly economic instruments which aim to internalise environmental or depletion cost through financial incentives. It should enable forest service providers, e.g. forest owners, to be able to manage the forest without incurring costs out of proportion to the personal benefit received but does not necessarily mean that payment to the full value of all forest goods and services is possible or desirable.

There are several types of market-based instruments that can be used as incentives for proactive environmental management. They can be differentiated both by the degree of government intervention, the nature of the transaction and the characteristics of the buyers and sellers:

- **Private payment schemes:** Beneficiaries, either private or public, make private contracts, payments or transactions for goods and services with forest owners. Government need not have any role in transactions but may wish to develop regulations or make facilitating changes to legislation. However, the development of appropriate schemes requires creativity, entrepreneurship and innovative marketing. Theoretically the establishment of such a scheme could involve the transformation of a public good (open access recreational forest) into a club good (fenced area with special offer e.g. game watching), but only if in line with the legal framework and generally accepted by society.
- **Cap-and-trade schemes,** under a regulatory cap or floor: Governments set a cap for delivery of a particular service, suppliers either meet the requirements themselves or can trade permits etc. to ensure that third parties deliver the services on their behalf. Most carbon emissions trading mechanisms are cap-and-trade schemes as are milk quotas. This is to stimulate demand and reward the most efficient service providers. Regulations must permit parties to either comply directly with the cap or to pay service sellers to do so;
- **Certification schemes** for environmental goods: Consumers need to express a demand for products that meet higher environmental standards and be willing to pay a premium price for them¹². There must be a chain of custody, independent inspectors and certification bodies able to operate a credible certification service. Governments could facilitate operation of certification schemes through appropriate laws and regulations;
- **Public payment schemes,** including fiscal mechanisms: Government motivation to pay for forest goods and services exist and a public body takes on responsibility for implementing the scheme. There must be sufficient financial resources available to support the payment scheme. For this there is a need to demonstrate (a) extent of

¹² However, certification does not always generate higher prices, but instead the certificate serves to secure market access and a market share. For NWFG&S certification is mostly Fair Trade for imports into Europe, within Europe certification of such goods and services is not an issue.

public demand for the service and (b) cost-effectiveness of the mechanism. Both of these are often demonstrated through the use of non-market WTP valuation techniques. It may be possible to increase the number and value of such schemes through innovative approaches ideally based on revealed preferences to more convincingly demonstrate the public value of forest goods and services.

- **Third party transactions:** Sales direct or otherwise of forest goods or services to which the forest owner is not a party i.e. payments for guided walks through a forest to a tour company with no involvement of the forest owner. There are several routes whereby some portion of these transactions could be channelled to the forest owner such as through taxation and subsidy (e.g. government grants for footpath maintenance), more direct fiscal measures (local business taxation), regulation, partnerships between enterprises and forest owners etc.
- **In-kind transactions:** Direct contributions to the cost of management often in the form of volunteer labour e.g. litter clearance or fund raising activities by NGOs. The value of such payments in-kind is generally poorly represented in forest accounts and is worth further investigation.

A more exhaustive classification of economic instruments for pollution control and natural resource management has been developed by the OECD:

- Emission charges/fees/taxes (direct payments based on measurements or estimates of the quantity and quality of a pollutant);
- User charges/fees/taxes (payments for the cost of collective services are primarily used as a financing device by local authorities, such as payments for the use of a natural resource, e.g. minerals, park, sport fishing or hunting facility);
- Product charges (charges applied to products that create pollution when they are manufactured, consumed or disposed of);
- Non-compliance fines (payments imposed on polluters who do not comply with environmental or natural resources management requirements and regulations);
- Deposit-refund systems (payment made when purchasing a product, which is fully or partially reimbursed when the product is returned);
- Marketable (tradable, transferable) permits, rights or quotas, also referred to as "emissions trading" (instrument based on the policy principle that any increase in emission or in use of natural resources must be offset by a decrease of an equivalent, and sometimes greater, quantity or emissions);
- Performance bonds (to guarantee compliance with environmental or natural resources requirements, polluters or users must pay a deposit in form of a "bond");
- Liability payments (payments made under civil law to compensate for the damage caused by a polluting activity);
- Subsidies (all forms of financial assistance to polluters or users of natural resources, e.g. grants, soft loans, tax breaks, accelerated depreciation, etc.)

Payment schemes are sometimes considered as a constructive alternative where government regulation fails or is unworkable. Changes in behaviour and management choices are facilitated through a series of positive incentives instead of threats or penalties. It has to be stated though, that there may be also sound economic reasons for imposing fines. For example

property rights may belong to the society so pollution may be penalised or regulated. Also it has to be critical assessed whether the applied mechanisms are delivering outputs to the desired level and quality, specifically with respect to biodiversity services.

However, there are large differences in legislation and culture between MS which makes it difficult to form recommendations on an EU level.

Drivers for the need for financing mechanisms and payments

Pre-conditions for establishing markets for non-wood forest goods and services

A range of policy and legal issues should be considered for the successful establishment and implementation of a payment scheme for forest goods and services. Key ingredients for the establishment and well functioning of markets are effective institutions and a reliable contract law.

To develop a market for non-wood forest goods and services, four preconditions must be met:

- There must be recognisable goods and services for which a price can be agreed;
- There must be a value gap between the service provided and the cost of providing it to enable payment schemes
- There must be buyers and sellers for these goods and services;
- Property, access and use rights are well established.

To operate a marketplace for non-wood forest goods and services, and ensure that it is transparent and stable, there are additional critical elements:

- Motivations of buyers and sellers and their perceptions of risk need to be understood to facilitate dialogue and negotiation;
- Agreement must be negotiated between buyers and sellers;
- Standards, legal rights, capacity and norms for governance of transactions must be in place, to ensure that contracts are enforceable and that there is confidence in the market on all sides;
- The costs of operating a scheme (including transaction costs) must be less than the benefits that are delivered;
- There must be financial mechanisms in place that enable completion of transactions between buyers and sellers.

4. Experiences in valuation and compensation of non-wood forest goods and services: Cases from EU Member States

This chapter summarises experiences presented during the WG meetings, covering cases from the following countries: Denmark, Spain, Ireland, Greece, France, Cyprus, Latvia, Hungary, the Netherlands, the Slovak Republic, Finland, Sweden, the UK and NGOs. Results from the presentations of the COST Actions E 30 and E 33 are included where appropriate. The country experiences are grouped around the following topics: Values of non-wood forest goods and services; recreation and leisure; water services; biodiversity and soils protection. As Rural

Development Programmes (RDP) under the new EU Rural Development Regulation¹³ also provide funding for amenity values of forests and support the diversification of forest enterprises and investments to secure non-market public benefits from forests, results of the WG discussion on the usage of rural development programmes is also presented here.

Valuation and values of non-wood forest goods and services

France reports, that for non marketable forest goods and services (Recreation, habitat, regulation and prevention of risks etc.) 18 valuation studies exist and results from ongoing studies are to be expected in 2008. Private payment schemes in France are mainly related to contractual arrangement. Examples were given, but over all such approaches are still rare.

Non-wood forest goods and services play a role in **Finland**, but because many are not excludable forest owners do not profit from them. This is particularly the case for extractive forest goods such as berries, mushrooms, lichen etc. due to "everyman's right". Consequently research on valuation has been carried out for more than 20 years, focusing more recently on game, biodiversity and cultural forest ecosystem services such as recreation, aesthetics and spiritual values. Case studies applying different valuation methods (Contingent Valuation and CE methods, CVM and Hedonic Pricing Methods) have been carried out both in rural and urban areas on recreation and the impacts of tourism.

In the **Catalonia** region of **Spain**, valuation of forest externalities has been either carried out in the context of the Forest Policy Plan for Catalonia (PGPF) or by using the compensation manual developed to value forest fire losses in Spain. The results of these studies show that environmental benefits (soil protection, flood control, biodiversity management etc.) in total are more than three times more than primary product (i.e. timber) values. But in the case of the PGPF results, the values obtained (e.g. environmental benefits 168 €/ha/year) are only used for strategic planning and argumentation.

In **Cyprus**, although the benefits of NWFG&S are well recognised, during project appraisal the impacts on them are not internalised due to the lack of monetary values. Today the level of income is high enough, that society can afford to pay for these NWFG&S. However, it is the scarcity of these goods and services, which will be the driving force for payment in Cyprus. In **Greece**, the long-standing and strict legal framework has hindered public/private activities in the field of non-wood forest goods and services.

An analysis from 16 Member states¹⁴ highlights, that non-forestry entrepreneurs profit most from non-wood forest goods and services (niche products and services, bundling activities and public goods) as they are more entrepreneurial and innovative in their approach to marketing of conventionally non-market values. Forest owners tend to focus on production and gain value predominantly from sales of raw materials (berries etc.).

Study results from **Latvia** indicate that forest property sizes and attitudes of private forest owners often determine the way non-wood forest products are valued and utilised. While 37% of owners in Latvia are noticing non-wood forest products as a usable resource, only 4% may gain income from it. Due to free access to state forests 66% of the Latvian population is engaged in mushroom picking, collecting berries, fruits and nuts. Restrictions may be

¹³ COM (2005) 1698 final

¹⁴ COST action E 30; <http://www.joensuu.fi/coste30/>.

imposed by owners for private forest properties. Export of berries and mushrooms also creates some value in the country, reaching approximately 3 million € in good years.

In the **Netherlands**, compensation schemes for non wood forest goods and services are largely restricted to provision of public access to land including forests.

The Forest Act of the **Slovak Republic** provides "values of effects of non-productive forest functions" structured by forest type units, monetary units per hectare and rotation period. The values were calculated using the relation of productive versus non-productive forest functions in different forest type units. For commercial forests the value of non-productive functions is calculated with ca. 40% of the productions function, in protection and special purpose forest it reaches ca. 500%. Despite having these values, compensation payments as such remain problematic due to limited funds available and unclear sector responsibilities.

Cultural factors may explain large differences in values between countries and the context for the generation of values has always to be considered before comparison.

Financing mechanisms

Rural Development Programmes

Rural Development Programmes based on the Rural Development Regulation (1698/2005 EC) form the major public financing instrument in support of rural development policy at EU and member state level. These programmes provide financial support for measures aimed at improving the competitiveness of the agriculture and the forestry sectors (Axis 1), improving the environment and the countryside (Axis 2) and the quality of life in rural areas and diversification of the rural economy (Axis 3). In addition, the LEADER approach (Axis 4) offers the opportunity to finance local and regional projects related to innovative rural enterprise development. It is worthwhile mentioning that new rural regulation through Axis 2 approaches the issue of forest-environment payments for the first time.

Funding usually works through co-financing between the EU and the MS based on approved national or regional rural development programmes which contain all the measures to be implemented in the new programming period 2007 –2013.

Potentially all four axes offer opportunities to support the provision of non-wood forest goods and services. In Axis 1 there are Measure 122: *Improving the economic value of forests* and Measure 123: *Adding value to agriculture and forestry products* both of which have room to include NWFG&S activities, for example by funding investments which improve the overall performance of a NWFG&S based enterprise by supporting marketing of products but also the development of new products and processes. Another potential source of funding could be Measure 124: *Cooperation for development of new products, processes and technologies in the agriculture and food sector and in the forestry sector*, where cooperation between primary producers, the processing industry and/or third parties can be funded. Also Measure 125 *Infrastructure related to the development and adaptation of agriculture and forestry*, mainly intended to improve access to forest land, can be used to for other forest services e.g. water management

Measures under Axis 2: *Improving the environment and the countryside* contain major opportunities to compensate for biodiversity services. Under Measure 224 payments for costs incurred or income forgone resulting from forest management restrictions in connection with Natura 2000 sites can be granted to forest owners; forest-environment payments (Measure 225) can be used to cover additional costs and income forgone for realising forest-environment commitments going beyond relevant mandatory requirements and can be granted for five to seven years. Also, the achievement of commitments undertaken in order to enhance the public amenity value of a specific forest area, can be supported by rural development programmes, namely through Measure 227: *Support for non-productive investments*. It has to be underlined though, that neither maintenance nor running costs are eligible for grants in this context.

Activities under Axis 3 focus on the quality of life in rural areas and the diversification of the rural economy. This also includes possibilities to further the provision of non-wood forest goods and services, especially in relation to cultural and leisure activities as well as natural heritage. Measure 313, for example, aims to encourage tourism activities by supporting the establishment of small information centres, small-capacity accommodation and the development and / or marketing of tourism services all of which can be relevant to adding value to the recreation services of forests. Also, the establishment of basic services, including cultural and leisure activities can be supported through Measure 321: *Improvement of the quality of life: basic services for the economy and rural population* if a village or a group of villages is concerned. In addition the conservation and upgrading of rural heritage (Measure 323) can also be funded. Activities that are allowed include the drawing up of protection and management plans relating to places of high natural value, environmental awareness actions and investments associated with maintenance and upgrading of the natural heritage and the development of high nature value sites. Also related studies and investments can receive grants.

Axis 4: Leader. At EU level, the Leader method is a prominent instrument to enhance local rural governance and structures and thereby enhances the effectiveness and efficiency of rural development policies. Based on a bottom-up approach it strongly advocates the creation of new public-private partnerships in rural areas. It integrates local constituents into the decision-making process, strengthens the self-governance potential of rural areas and increases local stakeholders' "ownership" of EU-funded projects. Leader encourages socio-economic players to work together, to produce goods and services that generate maximum added value in their local area. This can include non-wood forest goods and services.

Overall rural development programmes offer a broad range of measures potentially capable of providing payments for the provision of non-wood forest goods and services. To take advantage of this opportunity, it is up to the service providers- the forest owners- and the regional or national authorities to realise the value and potential of non-wood forest products and services and then include appropriate measures in the national and regional rural development programmes.

All MS have taken advantage of these opportunities and included forestry measures in their rural development programmes. However, first results of an ongoing analysis¹⁵ of the uptake of forest related measures in rural development programmes indicate comparably low recognition of activities related to environmental services (parts of Axis 2) and leisure and

¹⁵ Draft report to the EU Standing Forestry Committee on the implementation of forestry measures under the rural development regulation 1698/2005 for the period 2007-2013; preliminary results; to be published

cultural heritage (Axis 3). Nevertheless, it seems worthwhile discussing some examples of country uptakes presented to the Working Group:

In **Cyprus** for example there are plans to run a public payment scheme for a five year commitment targeted at enhancing biodiversity and combating soil erosion and water regulation.

France provides grants for Natura 2000 contracts and for risk prevention. For Natura 2000, a local steering committee sets up an “objective document” specific to a Natura 2000 site which defines non productive measures useful to restore biodiversity. Public-private contracts for these measures are financed through national-level public subsidies and co-financed through the rural development programme giving a total of up to 40 million € for the years 2007 – 2013 (all type of contracts, no data only on forest contracts). For the risk management of erosion, the initial historical strategy of purchase of mountainous land with high risk potential to afforest them has shifted towards the financing of management measures able to keep the role of risk prevention of some mountainous forests. Through the rural development programmes specific forest management measures are supported to the level of 10 million € for the years 2007-2013.

Examples of public payment schemes for soil protection have already been described for **Ireland** and **France**. Additionally, in other member states, public or mixed public – private mechanism are intended under the RDP for soil protection. Through axis 3, **France** also uses its programme to support the preparation of local multifunctional forest strategies as an important tool to foster stakeholder involvement and dialogue, as a pre-requisite to local contracting processes. In the **UK** Better Woodlands for **Wales** (BWW) scheme also provides grant aid for the preparation of forest management plans including public consultation and checks with heritage organisations.

In **Spain** RDPs are used to apply a public mechanism and a mixed public private mechanism for the benefit of land owners for biodiversity protection, climate regulation, air quality regulation and carbon sequestration, water regulation and purification, soil protection, and recreation and tourism.

Some other member states have just started to apply payment mechanisms for forest water services, in the framework of the Rural Development Programmes 2007-2013.

Ireland uses its’ RDP to co-finance measures such as retaining high value habitats or planting berry bearing species. This scheme is widely accepted and used by forest owners. Likewise in the **UK** co-financing is used to provide assistance with the provision of public services (amenity, access and biodiversity) from private woodlands.

The **Slovak Republic** grants funds for forest land managed under NATURA 2000 (allocated amount 2007 – 2013: 7.128 million €, annually 44.06 €/ha) as well as forest-environment payments (allocated amount 2007 – 2013: 24.355 million €, annually 55.58 €/per hectare).

Financing mechanisms for water services

The most innovative compensation mechanism for forestry is applied to the provision of water services. Water regulation and purification is an important and relatively new issue to most

member states of the European Union though there are a few MS that have developed payment mechanisms.

In **France** there are examples where water agencies receive support for riparian forest protection and restoration or drinking water catchments timbering. Examples were also reported of local contracts in the water sector (e.g. Vittel spring water in some extent; Saint Etienne drinking water service). Support for water-sensitive management on forest land is rare through water services, which tend to purchase forests in critical areas and manage the land themselves (e.g. Rennes drinking water service).

Additional examples of payment mechanism for water service come from **Denmark**. Here valuation studies for water services give a willingness to pay per person from 17.4 € to 262.7 € for naturally clean groundwater in Denmark and private water providers pay forest owners to modify forest management in order to preserve ground water quality. Such payments can be up to 100 €/ha/year. There are also a few cases where bottled – water companies use wells from private forest land and pay the owners directly for the water. The public water providers have also paid forest owners for changing forest management to preserve groundwater quality. However, most examples in **Denmark** concern public water providers that engage in large scale afforestation projects on recharge areas. In a Choice Experiment performed in 2004-2005, the WTP for clean drinking water from clean ground water versus cleansed drinking water was calculated as 130 € per household per year, which equates to 300 million € per year for Denmark.

Financing mechanisms for biodiversity

Among the member states of the working group, **Ireland** alone runs a forestry scheme (Forest Environment Protection Scheme FEPS) which offer financial incentives to farmers and forest owners for adherence to silvicultural or environmental standards above mandatory requirements. For example the scheme provides payments for extended open spaces, retained habitats, maintenance/creation of hedged boundaries etc. This scheme includes the protection of biodiversity but there is a special “Native Woodland Scheme”, which is also executed by the forest service which pays for conservation, management, restoration and planting of native woodlands. Both schemes are public to private mechanisms.

In **Finland**, the Forest Biodiversity Programme for Southern Finland (METSO Programme), from 2003-2007 has been extended to 2016. This programme was a major effort on compensation mechanisms. It contains 17 sub-programmes, including pilot projects designed to test innovative voluntary tender and contract schemes for landowners to promote biodiversity in the forests of southern Finland (mostly by restricting average cutting areas to 1-2 ha). The core mechanism is natural value trading and the mechanism forms a market place within which owners offer their sites for fixed term contracts for biodiversity conservation measures. This scheme has proved attractive to owners and there is a surfeit of tenders, but not all meet the criteria for the contracts. Depending on the importance of the area, contracts may be offered at a lower price. By late 2006, 241 contracts incorporating 1780 ha had been signed. Overall this voluntary mechanism is widely accepted. To expand its application, collaboration between forest and environmental agencies is considered indispensable. In an evaluation study of the METSO programme, it was suggested that the local social and economic impacts need to be included in the accounts of the scheme; that collaboration between the forest and environmental agencies is a prerequisite for expanding the use of new

instruments, and finally it takes time and resources to create a new culture and networks for biodiversity conservation.

In **Sweden** 900 000 hectares of forest land should be protected until 2010. 500 000 hectares will be chosen for protection by the forest owner him- or herself. 400 000 hectares will be protected with the support of the government. Of this 320 000 hectares are nature reserves which consists of larger areas of forest land and 80 000 hectares are habitat protection areas or nature conservation agreements. The two latter schemes are used for smaller forest areas. Habitat protection areas compensate the forest owner for the loss of market value on his property. Nature conservation agreements compensate the forest owner with a maximum of 20 000 SEK¹⁶ where up to 10 000 SEK is environmental value, up to 8000 SEK is timber value and up to 2 000 SEK for other values. An additional payment scheme has been introduced to compensate for the costs of ensuring or enhancing environmental or cultural values. Up to 70 % of the actual costs above normal logging costs are covered by grants up to a total of 15 Million SEK per year.

In **France**, besides payments through rural development programmes, there are fiscal mechanisms that apply for protected areas:

- a) Land Tax Exemption in Natura 2000 areas (very dependent on land value; on average 10 €/ ha / year) if a Natura 2000 contract or site management charter is agreed and
- b) Land Revenues Tax Reduction for expenses for preservation or restoration of protected areas.

No data are available so far on the implementation of this mechanism which only commenced in 2007. Linking the fiscal mechanism to management contracts means that there is an indirect financial incentive to engage in conservation management.

In **Denmark**, public to private mechanisms play a major role in compensation for preservation of habitat and biodiversity. The Danish private forest sector receives on average 10-15 €/ha in subsidies and support for specific management changes such as changing species to native ones, setting a side forest as nature reserves, the use of environmentally friendly silvicultural techniques etc. But also public-to-public schemes (Provision on public land; 100 – 200 million € for specific large scale restoration projects), private-to-private payments (capital funds as owners and managers of nature areas) and private-to-public transfers (fees and licenses, specific taxes) exist.

In the **Catalonia region of Spain** the LIFE programme has been used to fund the "Pirineu Viu" project which compensates for economic losses in connection with forest reserves and recreational infrastructure such as trails.

Other Member states, such as **Spain, Cyprus and Slovakia**, are intending to implement payments for biodiversity protection to forest owners through public or mixed public-private mechanisms, under their Rural Development Programmes for 2007-2013.

Calculations in **Ireland**, using cost-benefit-analysis found that each afforested hectare accounts for an 80€ value in biodiversity, with added benefits counting for 8€ per hectare per year.

¹⁶ 1 EURO = 10, 2174 SEK; 1 SEK = 0, 0978719 EURO (19.11.2008)

The **Slovak Republic** is obliged to compensate land owners for economic losses (income forgone, additional costs) due to management restrictions in the public interest. The available financial resources are not sufficient to allow the compensation in all cases though. Land tax payment exemptions are granted for protection and special purpose forests. The usage of market driven innovative mechanisms (contracts for nature protection, personal services and leisure facilities etc.) is limited due to the general legal framework (free access to forest land, obligation of forest owners for forest environment protection etc.).

In **Latvia**, a special law regulates the compensation for management restrictions on protected nature territories and micro-reserves. The calculation of compensation is based on income foregone. On approximately 54.000 ha of Natura 2000 areas, restrictions have been posted which are eligible for compensation payments, mainly relating to forbidden clearcutting. The payment rate provided through the Latvian Rural Development Program 2007-2013 is estimated with about 60 €/ha/year, which equates to 75% of the income foregone.

A review of the application of biodiversity valuation in **Sweden** showed that most studies focused on single species and efforts on biodiversity valuation as a whole remain rare. The valuation of changes in diversity appears even more complicated than changes in quantity of biological resources.

Over all for biodiversity public payments dominate while private payments are favoured for recreational and aesthetic services.

Financing mechanisms for recreation and leisure

Most examples of applied payment mechanisms are about recreation and leisure service of the forest. There are extensive studies on valuation of such services in several countries and many examples of compensation schemes as well. Almost all the MS have applied fiscal mechanisms or payments in general for recreation services; some regulate such payments by law or equivalent instruments, while others use sporadic fiscal mechanisms in forest areas with high nature value.

The creation of private-to-private mechanisms and markets works directly through person to person contacts (for example in hunting) and in different ways (for horseback riders, stickers to prove payment may be required, in the case of mountain bikers, tour organisers may pay to the landowner).

The COST E33 project was concerned with the valuation of Forest Recreation and Nature Tourism. The methods used by the COST team were Contingent Valuation (CV) and Travel Costs (TC) which are generally the most widely used methods. There were other methods that were investigated such as Choice experiments (CE) and hedonic pricing (HP), however, the results were expressed in different units e.g. per visit, per person or per hectare annually, which made results difficult to compare. The value of recreation and forest tourism services depends on several needs of a country but also on local conditions. The study presents results from **Denmark, Germany, France, UK, Finland** and other countries but since these are expressed in different units, it is not possible to make any safe comparisons and reaching EU-wide conclusions is impossible. For example a valuation study for forest recreation in **Hungary** gave 4 €/forest visit using CVM and TCM while a study conducted in Denmark estimated the economic value of a forest visit to be from 15 € to 18 €

In **Denmark** developments in private-to-private markets for recreational goods and services seem possible. Recent studies calculated an average willingness to pay (WTP) of 69 €/year/household for forest recreation while others yielded a value of 2 – 8 €/ visit (or 300 - 1.200 €/ha) derived from the 75 million visits to forests Danes undertake per year. Other approaches appraise values between 1 €(travelling costs) and 4 € Total value of the Danes' current recreational access rights may count for at least 250 €/ha/year. This value may even increase as already competition for space for recreation exists if all possible activities like team events, cross country mountain biking, horseback riding etc. are taken into account.

In the **Netherlands**, an entrance fee has to be paid for visiting certain natural sites, in **Latvia** entrance fees are requested for the use of special trails or enclosed areas in connection with game watching.

In **Ireland**, the public "NeighbourWood Scheme" aims to support local authorities in the establishment and improvement of forest amenities for recreation and access. Studies in Ireland estimated about 12 million forest visits per year with an average willingness to pay of 4 €per visit.

In **Finland** other approaches have been developed to compensate for recreational and aesthetics values. These mechanisms work through voluntary agreements to lease parts of the landscape for a specific period of time. Payments may be calculated on the basis of loss of wood production revenue, but also on environmental values. Contracts are prepared on a site-by-site basis.

Overall, it appears that within MS that public payments dominate for biodiversity while private payments are favoured for recreational and aesthetic services.

The rights and the nature of goods (subtractability¹⁷ and excludability) determine whether private markets or public instruments apply. Concerning the collection of non-wood forest products no complete exclusion of free riders is possible. Nevertheless potential benefits for forest owners exist.

5. Conclusions

Despite the fact that more than 60% of the forests in the EU are privately owned, depending on national legal frameworks, the access to and the use of the majority of non-wood forest goods and services is unlimited and free for the public. This is a precondition for market failure and has considerable implications for valuation and values as well as payment mechanisms and financing.

Nevertheless experts quote non-wood forest goods and services as important and expect a further increase in importance. Evidence has been gathered through valuation studies to support this view. Values may vary between different stakeholder groups depending on location, the goods and services and with scale.

Valuation and Values

¹⁷ one individual's use of a good or service detracts significantly from another person's ability to use it

There is a long tradition of valuation of non-wood forest goods and services in several EU Member States but this is mainly for single services, habitats or species. Integrated approaches are rare and valuation often looks at the value at a small scale or for marginal values. The majority of available valuation studies and values concentrate on recreation and biodiversity services, mainly carried out in Nordic countries and Western Europe.

Ongoing valuation studies have been reported from France (several different services), Sweden (biodiversity), Finland, Denmark, Hungary, Ireland, the Slovak Republic, and the UK. Most studies to date have used willingness-to-pay approaches. In some cases, the results of valuation studies have been used in benefit analysis. In the Netherlands, the valuation of non-market goods has been institutionalised in formal policy guidelines for cost-benefit analysis.

The final selection of the valuation method depends on the context of the valuation. Economic values estimated in different contexts should not be directly compared.

Benefit transfer techniques can be applied to derive values, when time and resources are limited. However, there is a considerable lack of standards and data on the estimation of costs of the provision of non-wood forest goods and services.

The role of valuation is to show the contribution of ecosystem services to the economy, to increase awareness of existing benefits as well as creating sense of ownership and commitment among stakeholders. However, valuations themselves do not determine the price to be paid; for that negotiations between providers and beneficiaries are necessary.

Nevertheless, valuation of non-wood forest goods and services and benefit transfer in many cases remain controversial. This is mainly due to the academic and political reservations over their usefulness and the technical feasibility of existing valuation tools to adequately demonstrate and fully reflect the importance of environmental values. Therefore, it appears to be necessary to intensively discuss the appropriateness of already existing values and underlying valuation approaches with potential users and implementers. Valuation methods should be improved towards a more integrated valuation taking into account that several non-wood forest goods and services are usually provided jointly and simultaneously.

Financing mechanisms

There is a wide range of mechanisms for financing provision of forest goods and services that are in use and these are likely to remain important in the future. Some mechanisms could also be modified to cover goods and services other than those originally targeted.

Most implemented payment schemes are either public (e.g. government payments to forest owners such as for Natura 2000 areas), private (e.g. market-based contractual payments such as in water catchments); or mixed public-private.

Public payment schemes (direct financial support or indirect through tax exemption or reduction) prevail by far, followed by private mechanisms (market based schemes like purchase of forest goods and services), which grow in importance

State financial resources are often not sufficient to be effective in all cases. Situations where the market can play a role in the provision of goods and services should thus be stimulated, while maintaining public payment schemes. A clear trend towards market mechanisms using fiscal systems, sponsorship and subsidy allocation by ways of auctioning already can be observed. Nevertheless, the creation of markets and especially local contractual systems should receive increased attention and support. Since many such market mechanisms are often still in the project/starting phase, monitoring of their performance, exchange of results and awareness raising is required for broader implementation.

Parts of the EU population experience a scarcity of goods and services so far available for free such as recreation in forests. As societies in EU became wealthier, it is assumed that payments for such goods and services have become affordable. Accordingly, payment schemes may be required where scarcity and perhaps decline in availability are evident and where existing incomes to forest owners are insufficient to maintain or maximise the provision of goods and services.

Besides awareness of the problem, a pre-requisite for establishing a payment scheme is the existence of institutional and political support. The application of a specific payment scheme depends on the interest and willingness of involved actors, laws and regulations in place and sufficient financial resources. Population pressure and access to a limited forest resource may drive interest from the user to secure through payments access to NWFG&S, while lower timber prices and reducing incomes available to maintain the resource in a good state may raise interest from the side of the forest owner.

Room exists for actions on political-institutional systems as well as enterprise development for innovation and enhancement of the marketability of non-wood forest goods and services. Good examples are applications of voluntary instruments for nature value trading (competitive tendering) and incentives for the provision of recreational and aesthetic values on a contract basis as well as the development of direct sales of previously non-marketed NWFG&S, such as forest burial sites. International scientific initiatives, such as COST actions, play an important role in identifying and disseminating successful approaches.

The growing importance of environmental (e.g. water, protection), recreational and nature tourism (e.g. mountain biking, forest pedagogics) services could be linked to market initiatives. In the wake of such developments, benefits of forest goods and services that were formerly seen as "free" – and therefore usually overlooked in economic decision making – can then be subjected to direct valuation (revealed preference) and eventually to the rigours of negotiation and contractual agreement.

Constraints in the creation of markets are often related to high transaction costs and/or the legal and socio-economic framework, such as the open access to forests and everyman's right. Also, people may not be aware of the real value of non-wood forest goods and services and expect to use them for free even when this is not legally the case. In this regard, the environmental and social benefits of forests could be characterised as undervalued. Some people, however, regard them as valuable but expect them to be paid from public budgets. An important initial step to address the issue of valuation is to assess by whom these goods and services are valued and to what extent. Identification and mapping of forests goods and services as is done for high social value forests (e.g. as developed in Sweden) is one way forward for public, open access benefits.

In general, society may be willing to pay for non-wood forest goods and services, but operational mechanisms supporting valuation and financing remain comparatively rare due to low interest or limited information and are not fully reflected in forest policy. These shortcomings should be made more explicit to policy-makers while exchange between countries/regions on practical examples could be used to devise clear guidelines for implementation of successful mechanisms.

To achieve a better recognition of non-wood forest goods and services and extend financing and marketing efforts, land owners and managers, their interest groups and extension services need to raise more strongly the awareness of decision makers and the general public on this issue.

The introduction and early stages in the implementation of new financing mechanisms can be difficult due to the need for innovative processes and weak support by institutions. The coverage of the initial costs of such initiatives often forms a bottleneck. Any new mechanism also needs to build on existing mechanisms which promote sustainable forest management.

The engagement of actors at the political-institutional level seems necessary for further development of public and private mechanisms and to facilitate market innovation by land owners and forest users. However, the public good characteristic of many non-wood forest goods and services has and will continue to restrict their marketability in the future. In order to safeguard further appropriate delivery, interested segments of society already are or may get involved in the provision of NWFG&S by voluntarily dedicate time and expertise to related activities.

6. Recommendations concerning valuation and financing of non-wood forest goods and services

To improve valuation and specifically the introduction and implementation of financial returns for the provision of non-wood forest goods and services, the Working Group has identified seven focus areas for action and recommendations:

For the SFC to recommend the **Commission and MS**

Focus area: Strategy and planning

- Develop a vision of the desired provision of non-wood forest goods and services building on sound data on demand, supply and appropriate payment schemes
- Discuss and provide guidance in implementing improved valuation methods for non-wood forest goods and services in order to foster acceptance and practical applications of research findings
- Develop and support communication strategies for the multiple goods and services forests provide as integral part of overall forest policy strategies, using the knowledge and existing infrastructures in the sector

Focus area: Rural Development Programmes

- Assess the implementation of rural development programmes regarding measures addressed to the provision of non-wood forest goods and services and exchange experiences in the SFC and between MS

- Consider non-wood forest goods and services when setting up capacity building, education and training programmes
- Explore the possibilities to support the introduction of innovative schemes like contractual systems for the provision of non wood forest goods and services in rural development programmes.

Focus area: Information needs and awareness raising

- Incorporate monitoring of the provision and financing related to non-wood forest goods and services into existing and/or newly developed forest monitoring systems at a regional, national and international level
- Promote better understanding and awareness of successful valuation and payment schemes at national, international and inter-sectoral level using, when appropriate, existing information and communication channels incorporating all relevant actors

Focus area: Research

- Enhance the accuracy of monetary estimates of the value of goods and services as well as their cost of provision and analyse the reliability of benefit transfer
- Further explore the wider influence of non-wood forest goods and services on regional economies, including outdoor recreation and personal and societal health benefits provided by forests
- Explore the efficiency of different financing mechanisms for non-market forest goods and services, with special regard to contractual arrangements

For the SFC to recommend **MS and regions** to look into

Focus area: Strategy and planning

- Work on a better integration of forest related goods and services in spatial and land use planning and development at national, regional and local level
- Foster stakeholder involvement and dialogue by establishing inter-sectoral negotiation bodies for non-wood forest goods and services to promote communication and the coordination and coherence of related policies and plans
- Consult forest users, including forest-based industry, in the development of mechanisms for marketing hitherto non-market NWFG&S

Focus area: Payment schemes

- Consider policies for the development and implementation of payment schemes preferably on market a basis, and support new and innovative mechanisms such as contractual instruments
- Review existing mechanisms and payment schemes to ensure that forest service providers are benefiting from them
- Provide guidance on the implementation of payment schemes for the provision of non-wood forest goods and services in order to facilitate the broader use of successful approaches

Focus area: Market development

- Support innovation, product development and entrepreneurship connected to the provision of non-wood goods and services and explore options for forest owners to benefit from such value addition
- Further apply public payment schemes where the public nature of non-wood forest goods and services is likely to continue to restrict marketability in the future
- Promote pilot initiatives to function as lighthouse projects in order to foster broader application of successful efforts in marketing of non-wood forest goods and services

Annex 1

SFC ad hoc Working Group on Valuation and Compensation Methods for Non-wood Forest Goods and Services

Glossary

Abbreviations

CE: Choice experiment

COST: European Cooperation in the field of Scientific and Technical Research

CV: Contingent valuation

DG: Directorate General of the EU Commission

EU: European Union

HP: Hedonic pricing method

MCPFE: Ministerial Conference on the Protection of Forests in Europe

MS: Member States

NGO: Non-governmental organisation

NWFG&S: Non-wood forest goods and services

OECD: Organisation for Economic Co-operation and Development

RDP: Rural development programme

SEK: Swedish Crowns

SFC: Standing Forestry Committee

TC: Travel cost method

WTA: Willingness-to-accept

WTP: Willingness-to-pay

Terms and Definitions

Benefit transfer: A practice used to estimate economic values for ecosystem services by transferring information available from studies already completed in one location or context to another

Excludability: Possibility to prevent from entering/taking a good or service

Market based instrument: Instruments that use price or other economic variables to provide incentives

Rivalry: Competition for a good or service

Subtractability: One individual's use of a good or service detracts significantly from another person's ability to use it

Transaction costs: Cost incurred for making an economic exchange e.g. not the production but the provision of a good or service

Annex 2**List of Non –wood forest goods and services**

Non-wood forest goods	
Sub – group	End – product
Edible plant products	Fruits Honey Mushrooms Nuts Berries Herbs Saps Roots Carob Beverages-alcoholic essential oils Ferns Ramsons (wild garlic) Flavouring agents Spices Maple syrup (tree sap) Sugar Taffy Butter Seeds Tisanes/Teas Vegetables Oils Wild rice
Animal products	Game meat and products Wool Hides, skins, pelts and furs Trophies Beeswax Honey Snails
Medicinal plants and health/personal care products	Nettle Common elder-flowers Lime-blossom Dog-rose hip Medicinal plants Herbs Aromatherapy oils Cosmetics Drugs Essential oils Herbal health products Nutraceuticals Perfumes and fragrances Shampoos and soaps
	Bark Fodder

Plant products	Forage Cork Wood carvings Wreaths, garlands and swags Natural dyes Pine boughs Moss Ferns Flowers and floral arrangements Seasonal decorations (e.g. mistletoe and holly) Cone crafts Grazing Gums Resin Compost
Materials and Manufacturing products	Adhesives Dyes Incense Lignosulfonates Stuffing material (e.g. moss) Twine and ropes Turpentine, gums and resins

Forest services		
ECOLOGICAL SERVICES	Water protection	Water quality improvement Drainage and natural irrigation Provision of water (drinking, irrigation and industrial use) Mitigation of avalanche risks Reduction of surface erosion and sedimentation Filtering water pollutants Maintenance of low flows and flow regulation Flood protection and moderation Enhancing precipitation (e.g. "cloud forests") Salinity mitigation Watershed protection Water retention (provide higher infiltration and soil water capacity than alternative vegetation covers) Regulation of hydrological cycle (superset of rainfall and flood effects) Regulation and redistribution of surface and below-ground run off
	Soil protection	Mass wasting Moderation or prevention of wind erosion Provision of coastal stability especially in sand dunes Siltation prevention Maintenance of productivity on arable land by farm tress Maintenance of natural productive soils Maintenance of soil vitality and ecosystem productivity
	Health protection	Protection of human habitation and infrastructure Waste treatment Pollution control Filtering of dust particles Abatement of noise pollution Food production Maintenance of good air quality

BIOSPHERIC SERVICES	Biodiversity Protection	Biodiversity conservation Provision of natural habitats Maintenance of biological and genetic diversity Maintenance of commercially harvested species Pollination of wild plant species and crops
	Climate Regulation	Maintenance of carbon balance Carbon storage and sequestration Stabilization of macro climate Mitigation of global climate change Provision of stable micro-climates Amelioration of extremes of urban micro-climates
SOCIAL SERVICES	Tourism	Travel through natural ecosystem Enjoyment of scenery Nature tourism Cultural tourism Rural tourism Sustainable tourism
	Recreation	Walking Hiking Camping Bird-watching Hunting and fishing Orienteering in nature Horseback riding Mountain biking War games Organized NWFP collection Huts and cottage renting
	Sport activities	Outdoor sports Organized sport competitions Hunting Fishing
	Education (Pedagogic) services	School excursions Forest Schools Intellectual development
AMENITY SERVICES	Spiritual Services	Sacred, religious, or other forms of spiritual inspiration Sacred sites – e.g. ancient places for worship or veneration of ancestral spirits Spiritual fulfilment Biophilia Sacred plants and animals Landscape features (mountains and waterfalls)
	Cultural Services	Nature as a motive in film, books, painting, folklore, national symbols, architecture Cultural identity and values related to forest, “Memories” in the landscape from past cultural ties Aesthetic enjoyment and inspiration
	Historical Services	Special landscapes Old trees Remains of traditional cultivation systems Historic artefacts

Annex 3**List of Working Group Members****SFC ad hoc working group on
valuation and compensation methods for non-wood forest goods and services****Experts nominated by the Member States**

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Commission Services represented

Directorate General Agriculture and Rural Development, Directorate General Employment, Directorate General Enterprise and Industry, Directorate General Environment, Directorate General Eurostat, Directorate General Joint Research Centre,.

List of meetings

<u>Date</u>	<u>Content</u>
26 June 2007	Terms of reference, background paper, list of topics
16 November 2007	Country experiences, study results
15 February 2008	Country experiences, study results
22 April 2008	Country experiences, update FORVALUE project

27 June 2008	Country experiences, study results, update FORVALUE project
19 September 2008	Update FORVALUE project, Rural development programmes, first draft report to SFC
14 November 2008	Second draft report to SFC

Annex 4

Terms of reference of the SFC ad hoc working group on valuation and compensation methods for non-wood forest goods and services

Background

As part of the work programme for implementation of the EU Forest Action Plan, the Standing Forestry Committee (SFC) at its 97th meeting on 18 December 2006 decided that two ad hoc working groups should be set up in order to facilitate implementation of the Action Plan (point #3 of the meeting Agenda). The possibility to set up working groups is laid down in Article 7 of the rules of procedure of the SFC (AGRI/2001/53015/02 EN).

Considering the above, the Commission invited Member States to nominate relevant national experts to contribute to the activities of the two working groups. The second working group, established in parallel with the working group on valuation and compensation methods of non-wood forest goods and services, will be addressing issues of mobilisation and efficient use of wood and wood residues.

Objectives and scope of work

This working group will contribute to implementation of key action 3, in particular activity 3.2 of the work programme 2007-2011 of the EU Forest Action Plan. The purpose of this key action is to exchange and assess experiences on the valuation and marketing of non-wood forest goods and services. In doing the above, the group will:

- Exchange information on the state-of-the-art in the field of valuation of non-wood forest goods and services;
- Identify methods and existing practices for compensation for non-wood forest goods and services;
- Exchange information on approaches for establishing new markets and marketing non-market forest goods and services;
- Discuss the need and applicability of innovative mechanisms for valuation of and compensation for non-wood forest goods and services;
- Identify good practices, draw conclusions and present proposals for possible further action.

The work of this working group will be implemented in cooperation with and consideration of the MCPFE (Ministerial Conferences on the Protection of Forests in Europe) process.

Mode and timing of work

The group is composed of experts nominated by the members of the SFC (list of experts composing the working group on valuation and compensation methods of non-wood forest goods and services is annexed to this document) and of 2-3 Commission representatives. The

Advisory Group on Forestry and Cork and the Advisory Committee on Forestry Policy and the Forest-based Industries will be invited by the Commission to nominate three to four experts representing forest sector stakeholders, who will also contribute to the work of the group. The MCPFE Liaison Unit will also be invited to participate in the work. In addition, the group may suggest other experts to be invited to talk on particular matters, if found necessary.

The mode and detailed timing of work of the working group will be decided by the group itself during the first meeting. The working group will hold between 4 to 6 meetings during a period of 18 months, starting the work in the first half of 2007. In the process of work, the group will periodically report to the SFC about the progress, completing the work and presenting a final report to the SFC by the end of 2008.

All experts are expected to contribute actively to the deliberations in the group as well as by providing the necessary information. Meetings will take place in Brussels and English will be used as a working language. Meetings will be chaired by the Commission. However, to facilitate the work, the working group may appoint *rapporteur(s)*, who will aid the chairman in reporting back to the SFC and preparing the group's final report.

Travel costs will be reimbursed to the participants of the working group meetings according to the same rules and procedure as applied to those attending SFC meetings.

Expected outcome

It is expected that as an outcome of work this group will produce:

- Recommendations and examples of best practices with special focus on: (1) identifying constraints in the field of valuation of and compensation for non-wood forest goods and services and (2) developing innovative mechanisms for compensating and establishing new markets for as well as marketing of non-market forest goods and services;
- Recommendations on how to include these measures in rural development programmes.

Annex 5

Draft list of topics for the SFC ad hoc Working Group on valuation and compensation methods for non-wood forest goods and services

In the 1st meeting of the SFC ad hoc Working Group (WG) on valuation and compensation methods of non-wood forest goods and services (28, June 2007), the participants decided to prepare a short list that facilitates the WG to focus on most important issues regarding the overall objectives of its work. This short list is based on the discussions in the meeting.

- **Analysis of most relevant non-wood forest goods and services.** The participants agreed that there is broad variety of non-wood forest goods and services that could be explored by the WG but including them all to the agenda of the WG would be difficult. Those which were regarded as most important related to **water management** and to the **protective function** of forests;
- **Valuation of biological diversity.** Valuation of biological diversity and the measures maintaining biodiversity were noted to be highly relevant issues to be examined in detail;
- **Exchanging information and sharing experiences on valuation and compensation mechanisms already applied in the MS.** The discussion revealed the need to exchange information on existing valuation and compensation mechanisms, including both their pros and cons. The presentations regarding different kinds of compensation systems in MS were welcomed
- **Exchanging information and sharing experiences on innovative approaches concerning the marketing of non-wood forest goods and services.**

Annex 6

SFC ad hoc Working Group on valuation and compensation methods of non-wood forest goods and services

List of Presentations

Study / Project results

- COST Action E 30: Economic integration of urban consumers' demand and rural forestry production
- COST Action E 33: Forest recreation and tourism
- Monetary valuation of biodiversity – Methods and experiences (National Institute for Economic Research, Sweden)
- Economic value for groundwater and biodiversity in European forests – a case study (DG ENV)
- Study on the development and marketing of non-marketed forest products and services (FORVALUE project): Several updates; preliminary final results and conclusions (EFIMED)

Country experiences

- Cyprus
- Denmark
- Finland
- France (general and water services)
- Greece
- Hungary
- Ireland
- Latvia
- Netherlands
- Slovak Republic
- Spain (Catalonia)
- Sweden (high social forest value)

Support mechanisms on EU level

- Forestry rules in the Community Guidelines for State Aid in the Agriculture and Forestry sector (DG AGRI)
- Forestry measures in Rural Development Programmes (DG AGRI)

Additional documents

- Background paper (DG AGRI, 2007)
- MCPFE activities within the field of non-wood forest goods and services (MCPFE Liaison Unit Oslo)
- Summary of experiences of valuation and compensation mechanisms for non-wood forest goods and services from Austria, Denmark and Finland (COPACOGECA)