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EX ANTE EVALUATION OF FINLAND`S NATIONAL FOREST PROGRAMME 2015

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Ex ante evaluation of Finland's National Forest Programme 2015

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1. Executive summary

In the course of 2007, the Finnish Ministry of Agriculture and Forestry will draw up the document for the Finnish National Forest Programme 2015. Preparation of the document is a participatory process, which also includes the ex ante evaluation of the programme document. The Ministry of Agriculture and Forestry commissioned Indufor Oy, in collaboration with Suomen Itsesuunnittelu Oy (ITSU), to carry out the evaluation.

The principal objective of the evaluation is to improve both the content and structure of the NFP as well as the efficiency of its implementation and monitoring. The impacts of the programme on the environment, biological diversity, balanced regional development and equality will also be assessed. The first item to be evaluated was the *Future Review for the Forest Sector - Outline of the National Forest Council concerning focuses and aims for the forest sector*, published in November 2006 by the National Forest Council. The results of the evaluation of the Future Review were published in the Interim Report on 31 July 2007. The document evaluated in the present Final Report is the *Draft for the NFP 2015* (10 September 2007). The consultation also covered the monitoring of and support for the process of developing the NFP 2015. The ex ante evaluation was conducted in parallel with the preparation of the programme so as to allow the recommendations produced in the evaluation to be incorporated in the final NFP 2015 document.

The ex ante evaluation of the draft document was based on evaluation questions provided in the assignment. The evaluation also included an assessment of how the recommendations of the Interim Report of 31 July 2007 had been taken into account.

1.1 Results of the ex ante evaluation

Preparation phase

Although the assessment of the preparation phase was not included in the assignment, a few general comments on the process are provided below.

The NFP process was conducted with the participation of various stakeholder groups and the process was openly publicised on the Internet, for example. The interactive nature of the process has also created a sense of ownership the programme. The preparation process followed the principle of continuous improvement, as a result of which, for example, the recommendations of the ex ante evaluation were taken into consideration fairly well.

The scenario calculations of the Finnish Forest Research Institute have contributed to the preparation phase, because they articulate the development scenarios and scales of magnitude. However, owing to the tight schedule, it has been difficult to employ them to full extent. It would have facilitated the work of the committees of the National Forest Council if the working groups had had their own working committees.

Finland is now carrying out a unique and fully functional NFP process, as well as accumulating knowledge and skills base for the efficient implementation of the process on the regional level. This could be used to advantage in the NFP processes of other countries as well (a potential export article).

Alternative calculations of the Finnish Forest Research Institute

The assessment of future developments in the programme is done using a numeric model for assessing the long-term development of market equilibrium in the forest sector. The model is used by the Finnish Forest Research Institute. Future scenarios illustrate the content of the programme and facilitate the assessment of its impacts. However, the time schedule determined by the availability of material for the scenario calculations has obviously obstructed the full utilisation of research results in the preparation of the programme. The current version of the NFP makes it difficult to see which of the Finnish Forest Research Institute scenarios is used as the basis of the programme, in other words, which future scenario is considered the most likely one by those who prepared the programme.

The production function premises in the SF-GMT model are partly static, that is, no shift in the production function takes place and the form of the function over time is fixed, and only known changes in technology are incorporated in the model. We know from history that the rate of change in overall productivity, not just the productivity of labour, has been about 2% per year for the past two decades or so, even though there have been significant differences in the development of partial productivity figures, raw materials, chemicals, energy, labour, capital, etc. Similarly, the calculations are based on the premise that the real prices of products will remain on current levels, whereas history shows that real prices have gone down significantly in the long term. Although production function assumptions and price premises may offset each other on the macro level to some extent, analysis of the dynamics of the industry inevitably remains insufficient, even for existing products.

Because the SF-GTM model examines the roundwood market separately for each Forestry Centre, it is conceivable that a connection between the model and the Regional Forest Programmes could be established in the future in order to reduce the supply-orientation in the RFPs. In the SF-GTM model, increasing the area of forest under conservation (unrealistic as such) to 5% of all forest area in South Finland, thus adding to the effect of declining wood imports, will not have a significant effect on total removals, for example, or even on the gross stumpage income of forest owners. The result is probably in the right direction. Markets generally tend to smooth out the effect of exogenous quantitative shocks on economic development. It should also be noted that differences between the scenarios regarding the impacts of forest management on waters, the recreational use of forests and/or forest biodiversity remain slight,

with the exception of increasing logging on peatlands. Differences in the employment impacts in the scenarios are eclipsed by the predicted increases in productivity. It should be noted, however, that 1,670 more jobs will be lost under the "declining roundwood imports with additional conservation" scenario than in the "declining roundwood imports" scenario. In other words, conservation has its cost. Nevertheless, it is not clear how employment impacts in tourism are taken into consideration in the input-output model.

The most interesting scenario is "bioenergy and new products". However, this is not examined in the SF-GTM model because of insufficient initial data on production technology and demand. The impacts of new products on removals (and apparently also on stumpage income) remain slight also in this scenario during the planning period. By contrast, increasing the annual harvest of forest chips to 12 million cubic metres cannot but have an effect on forest ecology and presumably also on the potential for recreational use and biodiversity.

In addition to harvesting wood for energy production, the scenarios suggest that the state of Finnish forests will also be affected by the growing demand for deciduous pulpwood. Under the "declining roundwood imports" and the "declining roundwood imports with additional conservation" scenarios, logging of deciduous pulpwood are greater by 3 million m^3/year than in the "greatest sustainable removals" scenario. According to the Mela calculations, this would appear not to lead to significant problems in sustainability on the national level, not even after the end of the planning period in 2015.

Functionality of the content and structure of the programme

The assessment of the content and structure of the programme was based on evaluation questions provided in the assignment brief. Recommendations of the Interim Report were in many cases taken into consideration, and the draft programme has been improved significantly during the process. Prioritising of the strategic aims of the programme and the choice of related targets remains deficient, leading to scattered targeting of resources and reduced impact. Below is a summary of the weaknesses and strengths in the content and structure of the draft programme:

Strengths

- The programme is clear and consistent.
- The logic between aims and implementation has improved, for the most part measures lead to the intended goals.
- Among future challenges, climate change, shortage of labour and declining roundwood imports from Russia are very well taken into consideration.
- The choices that have been made are based on a compromise reached with stakeholder groups (this is also a weakness)
- Better instruments to improve collaboration are searched for the RFP process.
- Other important policies and treaties are taken well into consideration (clear improvements: water protection and FLEGT, and Finland's role in the EU legislative process).

Weaknesses

- Implementation of the programme would require better prioritising of aims and measures; a sound programme will attract new resources and innovations.
- The starting point for the development of the programme and its aims are still too dependent on production potential instead of demand and market orientation. Proper understanding of the role of markets is still undeveloped.
- Increasing logging volumes may be implemented at the cost of the profitability of forest management (additional investment yielding lower marginal utility).
- Globalisation is regarded as a threat rather than an opportunity.
- The aims of Finland's international forest policy do not lend sufficient support to global social sustainability.
- Communications are given insufficient weight in securing societal acceptability for the programme.

The greatest challenges in the near future are the improvement of the profitability of domestic forest industry and the supply and market availability of roundwood, especially if the volumes of roundwood imports from Russia will decrease as a result of wood tariffs. Changes in population and social structure will also have the effect of reducing the wood supply. Challenges in the supply of wood are met fairly well in the draft programme.

Key long-term challenges of the forest sector include climate change and changes in the national and local operating environment caused by globalisation, which means a shift "from investment to innovation". The greatest drivers for change may stem from future structural rearrangements to improve the profitability of domestic forest industry. The realisation of this scenario would offset some of the problems deriving from insufficient roundwood supply.

The principal challenge for the forest sector (in the broad sense of the term) and related R&D are attitudes; resistance to change, which is a factor that stands in the way of innovation. Without a strong will to change and robust change management the forest sector cannot succeed.

The vision of the programme has been altered. Although the new vision is more concise, it is not dynamic: it is not clear what the programme is actually intended to achieve and how Finland is to be better than other countries. The programme makes reference to three common values of the forest sector, which are based on sustainable forest management.

A clear strategic intent and the means for distinguishing the Finnish forest sector from other operators in the market remain undefined. Communications are still not given enough attention in the programme. The image of the programme and communications about it should be designed to emphasise responsible market and customer orientation, whether in the context of material or immaterial forest products.

Enough attention has been paid on the regional level to the establishment of mechanisms to resolve conflicts in order to secure social acceptability for the programme. Development programmes of other sectors had already been integrated well into the programme. The draft programme represents an improvement regarding how national and international treaties and regulations are taken into account in it. On the positive side is the inclusion of a more comprehensive Section 3 Implementation, monitoring and further development of the programme (cf. NFP 2010)

Functioning of the system for implementation, monitoring and evaluation

(The action plan for the programme had not been completed at the time of the evaluation.)

Strengths

- The target level of the programme is ambitious, which is good; it compels vigorous implementation
- The programme seeks to specify responsible bodies, operators, financiers, funding, beneficiaries and implementation schedules for all measures envisaged in the programme. It can be assumed that the allocation of responsibilities will function better than before.
- Regional reporting on the implementation of the programme does work, albeit inadequately.
- An evaluation procedure exists (EA, interim evaluation, etc.).

Weaknesses

- The NFP process is predominantly administrative; there is insufficient commitment from the private sector (including industry and forest owners) to the implementation on the practical level, even though actors from the private sector are involved in the planning.
- Indicators for impact and performance require further work (relevance, validity, etc.).
- Regional implementation and monitoring systems require further development, especially insofar as implementation takes place outside the jurisdictions of the Forestry Centres.

The major challenges in the implementation of the programme on the regional level are to create preconditions for profitable entrepreneurship in the forest sector and to improve the profitability of forest management. Profitability would attract new operators into the sector and encourage owners to increase the size of their holdings, which would solve many of the current problems. The principal aim of the programme, to increase the volume of logging considerably, may actually decrease profitability. The return on investment (measured by the ratio of net result to original investment) must be the key indicator of profitability in the forest sector.

The roles and functions of the organisations in the forest sector should be defined clearly enough to respond to challenges in the operating environment and to secure an equal competitive position for companies and advisory organisations in the sector. The roles of the organisations have not been addressed with sufficient rigour in the programme, although their development has been taken into account on the level of measures. The cost-effectiveness and profitability of State-funded organisations must be improved (realigning their services in line with market demands) in order to improve the operating conditions of forest entrepreneurs in the long-term, not just their net result.

It is vital for the proper functioning of the monitoring and evaluation system that the implementation of national targets is relegated to the regional level. Targets must be set for different levels and actors. The implementation of measures should be monitored constantly on every level, using feedback produced by relevant indicators. Indicator data can be used to make adjustments on a semi-annual basis. Commitment from different operators must also be secured within the participatory process of programme implementation.

Indicators are still deficient in the draft programme, and their specification remains incomplete. Indicators in the NFP 2015 are divided into two categories, impact and performance indicators. The division is justified as such. The impact indicators seek to describe the achievement of the actual target, whereas performance indicators seek to show how well or to what extent measures designed to attain the target have been implemented. However, it is not possible to deduce directly from the performance indicators whether a target has been achieved or not, and monitoring focuses instead on the implementation of the action plan. The idea is that, although direct effects cannot be demonstrated, measures nevertheless have a positive, albeit indirect, effect on the attainment of the target. Generally speaking, the proposed set of indicators is reasonably good. Problems are

1) The indicators are not entirely valid. For example, the profitability of forestry is measured by net result per hectare, whereas the proper indicator of profitability is return on investment.
2) Inconsistency in the division of indicators into indicators for impacts and performance. For example, increase in the size of forest holdings is defined as an indicator of profitability, even though this is something that cannot be inferred directly from the indicator. The performance indicators proposed in the programme are predominantly input indicators.
3) The indicators describe factors which cannot be influenced with the NFP 2015. For instance, the proposed profitability indicator is the degree of mechanisation in forest management, even though the programme contains no measures through which this might be improved. The indicator as such is useful, because it allows for a better understanding of the reasons for changes, but it is not fit as an indicator in the NFP 2015.
4) The evaluation of changes in indicator values relies too much on subjective assessment. Examples include "Use of best available data in decision making" and "The impacts of

forest management on waters and the related risk factors are known".

5) The choice of indicators is dictated too much by the existence of monitoring data. It might be useful to conduct more separate monitoring projects. For example, a separate case study could be made concerning the effects of the activities of the Forestry Centres on the behaviour of forest owners.

On the positive side, the indicator system in the NFP 2015 is more forward-looking and more market-oriented than the criteria and indicators in the NFP 2010. The new indicators bring a stronger focus on other products than those of the forest industry, such as natural produce, tourism and recreational use, and the development of more diverse entrepreneurship in the sector.

The greatest challenge for the monitoring system is perhaps the updating of the regional monitoring (RFP monitoring) system to comply with the targets of the NFP 2015. On the regional level, the indicators should perhaps focus more than at present on describing the efficiency and degree of customer-orientation of operations. All principal operators should be included in the monitoring of the target attainment, and additional resource allocation should be linked to 3-year sliding averages. The performance targets for the Forestry Centres should be based on the Centres' own operations, not on the combined workload of all operators in the area. Regional indicators should also be developed to cover a broader scope than traditional wood production.

In updating the Regional Forest Programmes (RFP), attention should be focused in particular on the interdependency and harmonisation of economic, social and ecological targets in order to avoid conflicts, especially if roundwood production in certain areas should increase significantly from current volumes.

Impacts of the programme on the environment and forest biodiversity

Strengths regarding environmental impacts

- The state of the environment will probably improve with the programme.
- Environmental problems relevant to the NFP are taken into account, but they contain too many uncertainties.
- Soil protection is included in the programme.
- The programme makes provision for water protection, small water bodies included.
- Climate change is taken into consideration very well in the programme.

Weaknesses

- Logging on peatlands involves a great many uncertainties and risks (fertilisation – environmental load on waters; climate change – carbon balance).
- The environmental and social impacts of increasing the production and use of bioenergy have not been studied in sufficient depth.
- The programme presents no targets for energy savings or energy efficiency.

Strengths regarding impacts on biological diversity

- The preparation of the programme is carried out in parallel with the preparation of the METSO II programme, and the recommendations of the METSO I are taken into consideration in it.
- The principles of biological diversity of the Vienna Ministerial Conference are included in programme targets with respect to nature management and conservation in production forests.
- The set of measures for the protection of biodiversity is in the process of being extended and efforts are being made to increase resources for conservation.
- Provisions are made in the programme for reviewing the Act on the Financing of Sustainable Forestry.
- Latest research data in this area are used in the preparation of the programme.

Weaknesses

- It remains uncertain how the targets of METSO II and NFP 2015 can be integrated into the RFPs.

Recommendations of the Interim Report are for the most part taken into account: the tightening EU-level and international obligations regarding water protection, soil protection and climate protection have now been incorporated in the programme. As the preparation of the METSO II programme progresses, revised targets and measures for the protection of biodiversity and in particular for the management of production forests will become available. In the scenarios of the Finnish Forest Research Institute, environmental impacts were almost identical except in the case of increasing harvesting volumes on peatlands. The overall efficiency of peatland logging should be reassessed, because it involves uncertainties and risks related to water protection and climate/carbon balance impacts.

The implementation of the programme and its monitoring still face many challenges. One of the most important of them is the protection of biodiversity and slowing down the process of endangerment: Finland is currently preparing a monitoring report for the EU on the implementation of the EU Habitats Directive. The report will include country-specific estimates on the level of conservation of habitats and species considered important by the EU. In the light of preliminary monitoring data for Finland, the positive degree of conservation of biotopes in forests and peatlands has deteriorated markedly. As the climate changes, Finland will play a special role in the protection of northern habitats and species. How is this ensured in the National Forest Programme? Is Finland prepared to conserve sufficiently large continuous forest areas to provide ecologically better opportunities for northern species (and habitats) to survive climate change?

In view of this, it is justified to search for new ways and operating models for adopting a wide range of instruments in conservation

and nature management in production forests. Experiences gained with METSO I and existing biodiversity research results are employed very efficiently in the preparation of the METSO II programme. This is done, among other things, by revising and extending the biological criteria for nature conservation and by differentiating the targets of conservation and management on the regional level. Provision is made in the implementation of METSO II for eventual revision of the Act on the Financing of Sustainable Forestry. From the perspective of the modern landowner or forest owner who has assimilated the idea of biodiversity, it is important that support for environmental management or nature management is available and that the support is allocated only through one channel, and that broad-based advisory services reflect the needs and wishes of forest owners.

Along with the protection of biological diversity, one of the greatest challenges in the forest sector is adaptation to tighter energy and climate policy targets. The preliminary target for the envisaged increase in the forest bioenergy is 10–12 million m^3, a figure evaluated also by the Finnish Forest Research Institute in its "bioenergy and new forest products" scenario. It remains uncertain whether this target will be sufficient on the level of the European Union, when national burden sharing for increasing renewable energies nationally comes under negotiation in autumn 2007, at the same time as the use of biofuels in transport is increased and the fulfilment of the obligations of the Kyoto Protocol is otherwise ensured.

Prior to any extensive adoption, multi-disciplinary research on the environmental impacts of the use of forest bioenergy is needed. The life cycle chains in bioenergy production should be assessed from a sustainability perspective, and national sustainability criteria should be established as has been done in the Netherlands, for example. The use of bioenergy is in any case part of the global economy, and changes in energy prices have wide-spread effects on the price of other products and services. Increasing the use of forest bioenergy alone will not solve the problem of achieving the tightening obligations of climate and energy policy, however. The National Forest Programme must therefore also provide for eventual improvement of energy savings and energy efficiency.

The programme now makes suitable provision for the preparation and monitoring of water protection plans by also taking into account the protection of biodiversity in aquatic nature and securing a sound ecological state of waters, as well as maintaining it in the way required in the EU Water Framework Directive. The measures in the programme make provision for the development of geographical information systems and their adaptation as instruments of planning and monitoring, as required by the Water Framework Directive. However, closer cooperation is still needed with, for example, environmental authorities and researchers on the diversity of aquatic nature to ensure the adoption of best practices in water protection, and to ensure that these best practices are a truly functional element of a new type of broad-based and diverse advisory services modern forest owners want to have access to.

Considerable resources for multi-disciplinary research will continue to be needed to mitigate and anticipate detrimental environmental impacts. The programme now includes the targets and measures for conducting research on the impacts of climate change on forest ecosystems and adaptation to climate change in the future as well. The programme also needs to include considerable resources for research on biological diversity (cf. monitoring research on the PUTTE, MOSSE and METSO I programmes, research on social diversity, and biological diversity in aquatic ecosystems).

Impacts of the programme on balanced regional development

Strengths

- Regional development is taken into account moderately well in the draft programme.
- The preparatory process supported by a broad-based participation of stakeholders creates a good foundation.
- Harmonisation with other regional planning (e.g. other programmes, land use plans) is a necessary aim.

Weaknesses

- The monitoring and evaluation criteria and indicators for the target "Utilisation of regional strengths of forests" etc. (2.5.1.) are not yet completed.
- The real impacts can only be evaluated after the action plan is completed.

Even though the forest sector is no longer used as an instrument of regional policy as before, the sector still has great direct as well as indirect effects on regional development. The identification of regional impacts is in fact well accounted for in the draft programme. The relationship of the programme to other regional planning is given a deserved emphasis. The programme covers virtually all those elements that contribute to the regional impacts of the forest sector, but they are not used consistently to promote the positive impacts on regional development. This is a point where the programme would need to be developed further. Although regional development is influenced mainly on the level of the Regional Forest Programmes, the NFP should also include at least a brief description of the relevant mechanism. A general map of the regional impacts of the programme would also enhance understanding. Admittedly, such a document can be prepared with sufficient precision only after the review of the RFPs.

In some regions, the RFPs are already gaining an established position in the work for regional planning and programmes. The schedules for the preparation of various programmes, land use and action plans are different, as are their judicial and other impacts. The relationship of the Regional Forest Programmes to this cluster of plans should therefore be clarified, as is deservedly pointed out in the draft programme, and the harmonisation of the plans with the RFPs should be developed further.

Evaluation of the regional impacts of the NFP is based on developmental indicators. In order to be able to evaluate the degree of balance between regional impacts, the set of indicators should be the same throughout the country. The set of indicators was not yet included in the draft programme. The RFPs should be developed into a structurally even more comparable direction than at present. The utility of forest management and environmental reports for the evaluation of regional development can also be improved.

One problematic phenomenon for regional development which is difficult to assess is the transfer of forest income away from the geographic location of the holdings. The effects of this phenomenon are particularly marked in eastern and northern Finland, where the proportion of State-owned forests in particular is relatively high.

Equality impacts of the programme

Strengths

- Of all people engaged in the forest sector, 18% (90,000) are women (10% of forest entrepreneurs, 5% of forest machinery operators, 1% of forestry workers, 40% of forest owners, about 50% of students of forestry)
- A more active role of women in the forest sector would offer solutions for labour shortage, more flexible market supply of wood, and more innovation.

Weaknesses

- The forest sector is male-dominated.
- The NFP has not been gender mainstreamed (the NFP is "gender blind")
- Key statistics are not differentiated by gender.
- Women's interests are not accounted for in development challenges and aims (cf. special measures proposed for children and young people).
- The needs and aims of women forest owners are not taken into account sufficiently (diversity in forest management).

Gender equality has become a significant theme in international development programmes, both within the UN and the World Bank, as well as in international forest policy and related recommendations. Women are increasingly seen as a resource and also a source of innovation. Unfortunately this is not the case with the Finnish National Forest Programme 2015, which is quite gender blind.

The forest sector is very much male-dominated. Key statistics in the NFP are not differentiated by gender, unlike in other regional policy programmes. Although women are mentioned as forest owners in the section on forest ownership, their importance as forest owners, in practice about 40%, is not taken into account. In the section on safeguarding the supply of competent labour, the fact that approximately 18% of people working in the forest sector are women has not been taken into consideration. By contrast, only about 10% of the 7,000 entrepreneurs in the sector are women, about 1% of forest workers, and 5% of forest machinery operators. Women's greater participation might help to alleviate the labour shortage, as well as the supply of wood on the market more generally.

In summary, we may say that the programme is not gender mainstreamed, nor does it contain any special measures that would support forest-related skills among women. On the other hand, in some areas, children and young people are taken into consideration quite well. However, no measures for implementation are proposed in the programme that would address the management and coordination of networks of different actors, or the support of interactive participatory processes aiming at the prevention of conflicts using professional mediators, for example.

1.2 Recommendations of the ex ante evaluation team

Alternative calculations of the Finnish Forest Research Institute

1) The calculations should be taken with reservation, because models only describe real-world processes to a limited extent. It should be noted in particular that the models only apply to current industrial forest products, while new ones such as bioenergy are not accounted for in them. The development of a demand-oriented analysis would therefore require a closer modelling of the dynamics of wood-based industry. It must also be taken into account that the calculations only cover forest products, not forest-related services.

Recommendations for improving the content and structure of the programme:

1) The vision should define a challenging strategic intent for the future and specify the means for distinguishing the Finnish forest sector from competitors.
2) The primary objective of the programme must be the long-term viability of the forest sector.
3) The most important measure proposed in the programme is the development of a form of limited liability company appropriate for forest owners (under objective 2.2.2.). It would allow
   - indirect forest ownership (equal taxation)
   - separation of forest ownership and the operative management of forests
   - forest management to be the principal line of business
   - increasing forest investment and lead to improved profitability of forest management.
4) State subsidies should be targeted correctly; competitive tendering and improvement of the efficiency/profitability of forest management.
5) Regardless of the final amount of resources (still open in September 2007), the efficiency of measures relating to different targets must be improved and the number of measures reduced.
6) Among future challenges, globalisation will require great changes in the attitudes of the industry as well as rapid

action in the development of new products and research instead of maintaining current structures.
7) The equality of women and men as beneficiaries, in education and at work must be taken into account better than at present.
8) International forest policy might be used to promote social sustainability in a developing market (social risk management).
9) The establishment of an international think tank with a view to lobbying international forest policy and promoting forest-related and environmental matters in development cooperation.

Recommendations for the development of the implementation, monitoring and evaluation procedures of the forest programme:

1) An analysis of the key actors, organisations and networks in forestry must be made and new procedures found so as to be able to respond to the requirements concerning the implementation of the programme (the recommended measure under objective 2.2.3. only covers actors in the public sector).
2) Efficient implementation of the programme requires change management and additional resources on the national and regional level. Additional resources must be made conditional on real results.
3) Each measure must have designated resources and actors; it must also be specified which measures already have resources reserved for them and which are still proposals.
4) The commitment of the private sector to the implementation of the NFP/RFPs must be improved through a participatory process.
5) Indicators for impact and performance must be refined, and indicators for cost-effectiveness and profitability must also be incorporated.
6) Statistics concerning all indicators relating to training, employment and entrepreneurship should be differentiated by gender. The indicators should not rely only on existing data or data that are already gathered.
7) Training on the systematic assessment of the impact of operations and performance (indicators) should be organised both nationally and regionally.

Table 1.1 Recommendations for measuring some individual objectives

Objective	**Recommendations for indicators**
2.1.1 Efficient and sustainable utilisation of growing opportunities for harvesting.	- Cost-efficiency and profitability should be taken into consideration when setting targets for the indicator - Each indicator should be checked for whether it measures quantities or impact.
2.2.2 Improvement of the profitability of forest management and development of the structure of forest ownership.	- Net result alone is an insufficient factor to describe profitability. The goal of lowering unit costs would be important, as would be the lowering of the costs of administration/administrative organisations. The diversity and precise targeting of indicators must be improved. - The profitability and the proportion of administrative costs in key forest management and improvement measures must be monitored. - Possibilities for enhancing the diversity of procedures and methods for consultation should be taken into account.
2.2.3 Safeguarding the supply of competent labour.	- The number of graduates from the various levels of education relative to the needs of employers. - It should be verified that the proposed indicators actually measure the availability of labour.
2.3.1 Increasing the use of wood-based energy.	- The rising price of electricity and increasing the share of biofuels in transportation are not a direct indication of the use of wood-based energy. - The validity of the indicators should be checked.
2.5.2 Promoting diverse entrepreneurship.	- The forest sector should be understood in a broad sense here, and monitoring should also cover nature-based tourism entrepreneurship, for example.
2.5.5 Developing the recreational use of forests.	- The spectrum of recreational use should be broadened, and recreational use of other than State-owned lands should also be monitored.
2.5.7 Maintaining and developing forest-based culture.	- An inventory of culturally and historically important sites is not a sufficient indicator for describing the development of culture. - The position of the Sami as an indigenous people must be taken into consideration in the preservation of culture.

Recommendations relating to environmental impacts:

1) The sufficiency of funding for nature management should be taken into consideration in connection with the review of the METSO II programme and of regional programmes as well.
2) Sufficient resources for multi-disciplinary research are needed to evaluate the risks arising from climate change and adaptation to them.
3) The programme must make better provision than at present to energy savings and improvement of energy efficiency.
4) National criteria concerning the environmental impacts of broad-based use of forest bioenergy are needed for decision-making. The total energy balance of different sources of bioenergy must be determined prior to extensive production.
5) Sufficient resources must be reserved in the programme for regional planning of water protection and for the implementation and monitoring of water management plans.
6) The overall efficiency of peatland logging should be reassessed because of the many risks/uncertainties involved.
7) Investment in multi-disciplinary research is needed for mitigating/anticipating detrimental environmental impacts.

Recommendations regarding the protection of biological diversity:

1) Provisions should be made to implement a broad range of voluntary conservation measures, and the Act on the Financing of Sustainable Forestry should be revised to include the conservation of sites listed for protection, also new ones.
2) Sufficient resources should be reserved for a new type of diverse consultation which can be used to support actively the conservation of biodiversity and the attainment of increasingly stringent targets for water protection.
3) Sufficient resources should be reserved to educate forest management professionals to respond to the new requirements of nature management and water protection.
4) Regional multi-criteria planning should be promoted in Natura areas, for example, integrating the objectives of water protection, biological diversity and forest management.
5) As the climate changes, Finland will play a special role in the protection of northern habitats and species; this calls for the conservation of sufficiently large continuous forest areas.
6) Managing endangerment in changing conditions requires resources for multi-disciplinary research on biological diversity.
7) Sufficient resources are needed for joint planning and consultation on the regional and local level (i.e. forest sector, water protection, biodiversity conservation).

Recommendations for the promotion of balanced regional development:

1) The target-oriented mechanism for regional development and regional balance in national and regional programmes should be clarified.
2) The NFP should include a target-related spatial structure of forestry from the national administrative perspective, using a rough map, for example (similar to the map on future regional development of Finland produced by the Ministry of the Environment). The map would set out the special features of the use of forests and the areas of national importance vis-à-vis forest management from the perspective of regional (structural) balance.
3) For the upcoming review of the Regional Forest Programmes, the NFP should identify geographic areas and content elements of particular national importance in the RFPs and in other strategic regional programmes which require harmonisation. For example, in the planning of the use of forest chips for energy production the harmonisation of the RFPs and other regional programmes is particularly important also on the national level, (e.g. in North Karelia).
4) Organisations responsible for the preparation of the RFPs should be presented directly in the programme document, for example, in a separate Annex.
5) The views of stakeholders and specialists representing different genders and generations should be utilised more broadly in the review of the Regional Forest Programmes.
6) Indicators for the monitoring and assessment of regional balance must be included in the NFP 2015, differentiated by gender. The set of monitoring and assessment indicators provided in the NFP to the RFPs must be as coherent as possible to improve the national comparability of the monitoring and evaluation of the RFPs.
7) Potential commensurate indicators could be regional changes in the number of jobs in forestry and taxable forest income. Regional changes indicate a "leaking" of the forest income of companies, organisations and the State from one region to another. The possibility for refunding such "leaks" of forest income should be studied in eastern and northern Finland in particular.
8) Other commensurate indicators could be certain regional impacts that are not reflected in employment figures, mainly those that affect wellbeing (such as recreational use of forests, hunting, nature tourism, maintenance of natural values and habitats, and perhaps collecting of natural produce for household use). With respect to employment, the impacts of the programme could be evaluated for both the entire forest sector and for sectors of the economy that are wholly or partially dependent on it.
9) With respect to the Regional Forest Programmes, monitoring and assessment of regional development and regional balance should be increased in both forest management and environmental reporting.

Recommendations relating to the promotion of equality:

1) Key statistics in the forest sector should be differentiated by gender. Such statistics include economic status (income and forest owners), education on different levels, employment and opportunities for participation on the boards of organisations and companies and in representative bodies.

2) The programme should clearly express development challenges both generally and for target groups differentiated by gender.
3) Aims and expected results of the programme should be prioritised and presented relative to the challenges of the target groups and the operating environment.
4) The detailed nature of the system of implementation calls for measures that involve the management and coordination of actor networks. In order to prevent conflicts, interactive participatory processes should be supported using professional mediators. Gender equality should be mainstreamed into the NFP 2015 and special measures should be undertaken to increase the attractiveness of the forest sector among women and young people (see Table 1.2).

Table 1.2 Promoting equal rights through mainstreaming and special measures

	HR Policy	**Functional**
Main-streaming	- Statistics and monitoring differentiated by gender (HRA) - Equality training	- Key statistics differentiated by gender - NFP 2015, its process of administration and implementation - Education and research in the forest sector - Women and young people into the "wood chain" - Acceptance of multi-indicator forest management* - Equality guidelines of international forest policy are followed
Special measures	- Recruitment - Career development - Mentoring - Quotas for education and middle management	- Strengthening women's networks and linking them to the RFP and NFP 2015 processes - Guidance and special events for women forest owners and nature entrepreneurs - Youth and women's seminars into the Forest Academy

*) forest owners must be given more information about the impacts of different alternatives and legislative conditions to aid them in decision making

2. Ex ante evaluation: assignment and aims

The draft document for the NFP 2015 will be drawn up in 2007 by the Department of Forestry of the Ministry of Agriculture and Forestry. The preparation of the document is a participatory process, which also includes the ex ante evaluation of the programme document. The Ministry of Agriculture and Forestry commissioned Indufor Oy, in collaboration with Suomen Itsesuunnittelu Oy (ITSU), to carry out the evaluation. The first item to be evaluated was the *Future Review for the Forest Sector - Outline of the National Forest Council* concerning priorities and aims for the forest sector, published in November 2006 by the National Forest Council. The results of the evaluation of the *Future Review* were published in the Interim Report on 31 July 2007. The document evaluated in the present Final Report is the *Draft for the NFP 2015* (10 September 2007).

The principal objective of the evaluation is to improve both the content and structure of the NFP as well as the efficiency of its implementation and monitoring. The impacts of the programme on the environment, biological diversity, regional development and equality are also assessed. Although the object of evaluation is a static document, the consultancy also includes the idea of monitoring and supporting the process of the development of the NFP 2015 in the best possible way. The ex ante evaluation is conducted in parallel with the preparation of the programme so as to allow the recommendations produced in the evaluation to be incorporated into the NFP 2015.

In keeping with the assignment, there are five sections in the evaluation, through which the development needs of the programme are laid out (Figure 2.1).

The ex ante evaluation answers the central questions concerning the improvement of the programme and provides concrete proposals for the development of the content, implementation and monitoring of the programme.

The framework of the ex ante evaluation is presented in Figure 2.2. The figure indicates the main connections between the preparation, implementation as well as monitoring and evaluation of the NFP 2015, the indicators for the efficiency, performance and impact of the programme, as well as sections of the evaluation on the basis of which recommendations for the development of the programme are made.

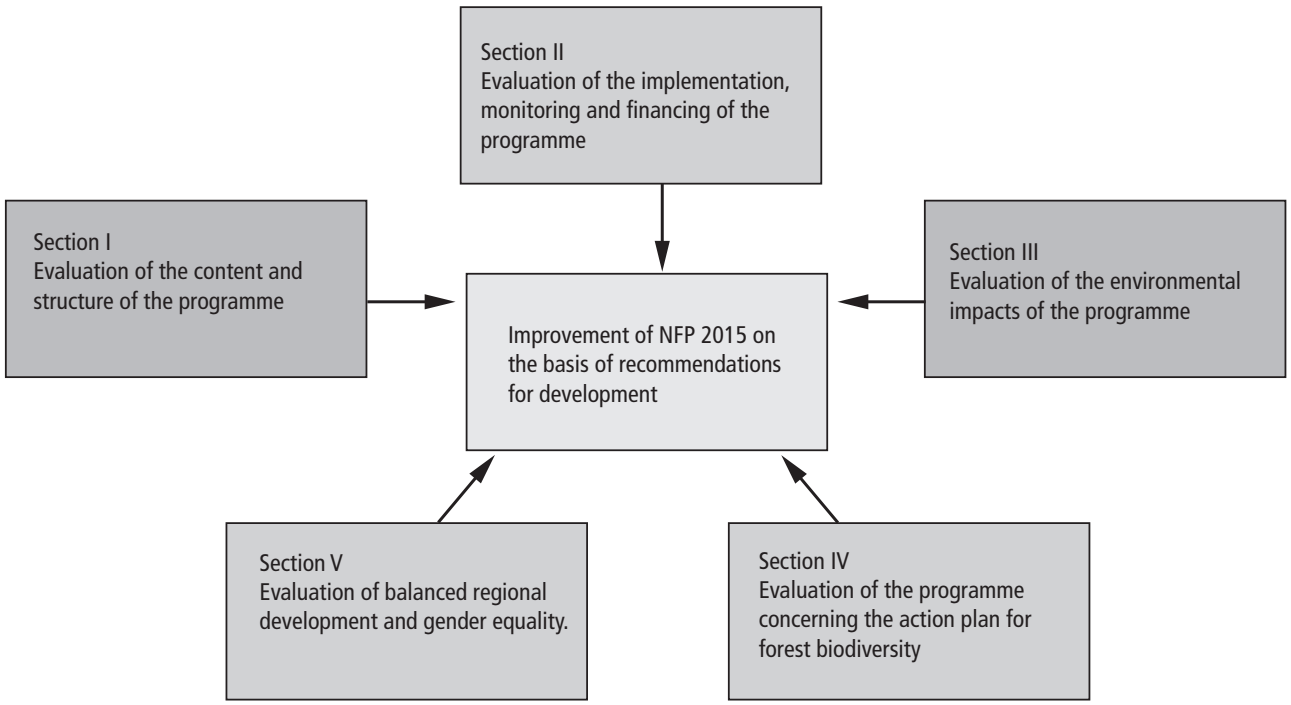

Figure 2.1 Sections of the ex ante evaluation for improving NFP 2015

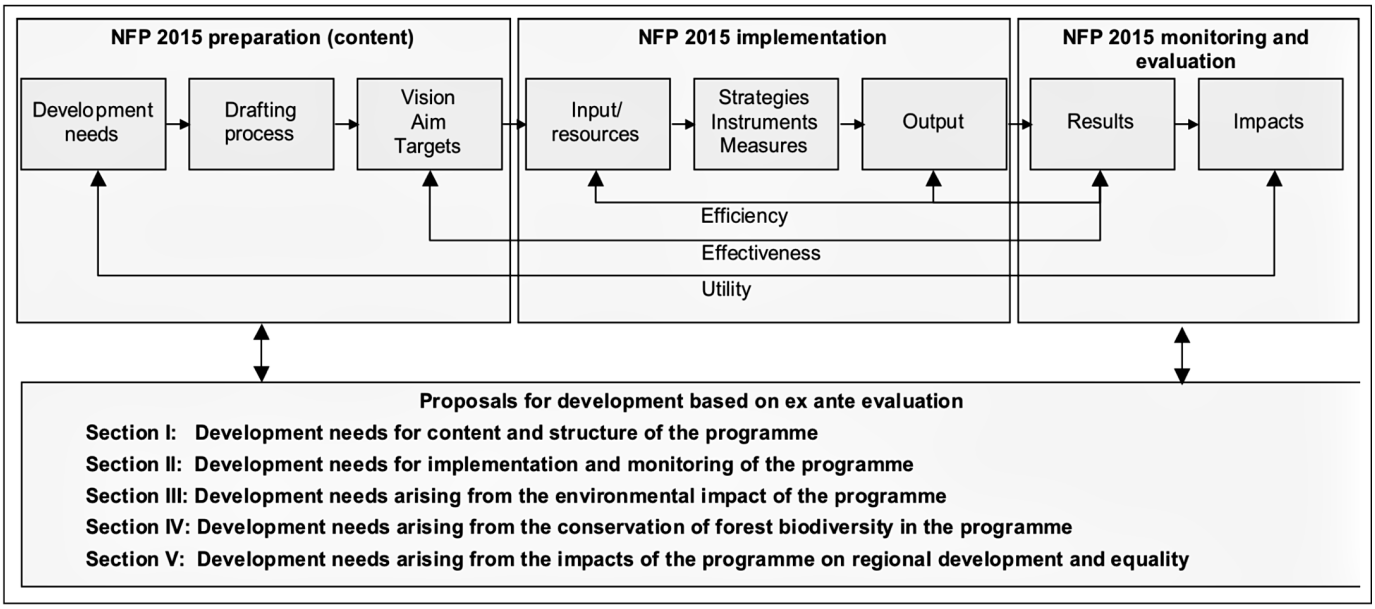

Figure 2.2 Framework of the ex ante evaluation

The members of the evaluation team, their tasks and roles in the evaluation are presented in Table 2.1.

Table 2.1 Members of the evaluation team and peer review team

Team member	Task in the evaluation
Simula Anna-Leena, Indufor Oy	Principal responsibility for the entire evaluation, Content and structure (Section I), guidance and monitoring of other sections of the evaluation.
Blåsten Anni, Indufor Oy	Assistant to Ms Simula and administrative coordinator of the project, Content and structure, futures work (Section I).
Nikinmaa Hanna, Indufor Oy	Content and structure (Section I), Environmental impacts (Section III) and METSO (Section IV).
Lehtonen Petri, Indufor Oy	Implementation and monitoring (Section II).
Puustjärvi Esa, Indufor Oy	Content and structure (Section I) and Implementation and monitoring (Section II).
Ojala Juha, Expert	Content and structure, Implementation and monitoring (Sections I and II).
Piispa Päivi, Expert	Environmental impacts (Section III) and METSO (Section IV).
Horelli Liisa, ITSU Roininen Janne, ITSU Heikki Kukkonen, ITSU	Balanced regional development and equality (Section V).
Haltia Olli, Indufor Oy Kuuluvainen Jari, University of Helsinki Tikkanen Ilpo, European Forest Institute (EFI)	Peer review team

3. Alternative calculations for the preparation of the national forest programme 2015

3.1 Introduction

In the programme, future development is calculated with a numeric long-term market-equilibrium model for the forest sector used at the Finnish Forest Research Institute. Adopting scenario calculations in the preparation of the forest programme is a welcome development and, when successfully implemented, a factor that improves the utility of the programme as well as its clarity and transparency. Owing to problems in the availability of data, the schedule of the scenario calculations has prevented the full utilisation of results in the preparation of the programme. For instance, it is difficult in the current version of the programme to see which of the scenarios calculated by the Finnish Forest Research Institute are used as the foundation of the programme, in other words, which scenario is considered most likely.

Another problem is that production function assumptions in the SF-GTM model are partly static, in other words, shift in the product function is not shown for all production but the shape of the production function is partially fixed over time. The model only takes into account known changes in technology. We know from history, however, that total productivity (not just the productivity of labour) has in the past couple of decades increased by about 2% annually – although there have of course been significant differences in the rate of development in partial productivity, raw materials, chemicals, energy, labour, capital, etc. Similarly, the calculations assume that real prices will remain on the same level, whereas we know from history that there has been a significant drop in real prices in the long term. Assumptions regarding the production function and prices may offset each other to a certain extent on the macro level, but the analysis of the dynamics of the industry inevitably remains insufficient, even in the case of certain existing commodities.

In the SF-GTM model, the roundwood market is addressed by the Forestry Centres, which would allow a connection to be established between the model and Regional Forest Programmes in the future, thus allowing the supply-orientation of the RFPs to be reduced.

3.2 Assumptions in the scenario calculations

Results of any numeric model, such as the SF-GTM, are affected not only by the structure of the model, but its parameterisation, ascribing numeric values to externally determined parameters. Since SF-GTM is a demand-oriented model, its functioning is determined by the prices set for end products and exogenous input prices, except for wood raw material. In the calculations made for the forest programme, it is assumed that the prices of forest industry products will return to the average level of 2000–2006. This is a possibility, but not necessarily the only arguable one. The export prices of Finnish paperboard and paper products stopped rising in the mid-1990s, and kept dropping clearly from 2000 to 2005. There were no signs of any change in this trend, at least until mid-2007. The prices of sawmill products and of the plywood industry have shown a declining trend already since the 1970s, although the annual drop has been very small. Since 2005, the prices of sawmill products have again picked up clearly (Metinfo, foreign trade in forest industry products).

An equally arguable alternative to the regressive price expectation used in the scenario, the return of prices to the mean level of 2000–2006, is that the prices of sawmill products and plywood in Europe will remain on a clearly higher level than in the early 2000s, and also the continuing downward trend in chemical forest industry products during the planning period 2007–2015. Factors having an essential effect on future development are:

i) the development of the demand for energy wood in Europe,
ii) the development of supply from Russian sawmill industry, and
iii) the development of demand and productivity of chemical forest industry outside Europe, and the related development in the supply of tropical cultivated wood.

Scenarios 3 and 5 assume that forest conservation will increase to 5% of forest area in southern Finland. Considering the time horizon of the forest programme and the available State budget, this is a totally unrealistic level of total conservation in southern Finland. (The estimated cost of €2.4–3.3 billion as assumed total conservation, the annual State budget for conservation is €60 million, which gives a reimbursement time of 50 years, see Horne, 2007, Finnish Forest Research Institute scenarios, p. 64).

Except for the "business as usual" scenario, the price of energy is expected to rise by 2% annually up to 2015. The assumption of rising energy prices seems realistic, and should also have been included in the "business as usual" scenario. Between 2000 and 2005 the price of solid wood-based fuels (€/MWh) rose by about

5% annually. Since the annual rate of increase of the price of district heating, fossil fuel and electricity in the 2000s was between 3 and 5 percent, an assumption of a 2% rise in the price of energy may in fact be an underestimation.

3.3 Scenarios

The model is used to examine the following scenarios:

- "business as usual" (S1) (it remains unclear what this exactly means)
- "declining wood imports" (S2)
- "declining wood imports with additional conservation" (S3)
- "greatest sustainable loggings" (S5)

An additional scenario is also considered that involves considerable increase in the use of wood for energy production and the impacts of new products on the turnover of the forest industry (S4).

Scenario S5 is uninteresting, because the report of the Finnish Forest Research Institute does not indicate how it was calculated. In the description of alternative calculations, it is noted that the harvest volumes of private forest owners are compelled to follow a path on which the largest volume of sustainable logging is attained by 2015. It is also noted in the report that forest owners are forced to sell large volumes of roundwood at considerably lower prices than they would actually be willing to do. On the other hand, sustainability limits the harvesting of other trees than pine sawlogs and pine pulpwood, and their price will rise steeply. Since stumpage earnings would also increase (69%), this implies an inflexible demand for wood (pulpwood).

Also in other scenarios the rising stumpage prices, caused by increasing demand for domestic roundwood due to declining imports (and also due to declining supply owing to conservation in scenario S3), leads to higher stumpage earnings. The price elasticity regulating the roundwood market in the model is not reported. However, the assumptions regarding price elasticity have a crucial effect on, for example, how prices are affected by fluctuations in demand and supply, and also on stumpage earnings and the cost of wood for the forest industry. In the past, the estimated short-term price elasticity of pulpwood demand has been < 1 (for sawlogs often > 1). It is far from obvious, however, that this will be the case also in the future. A more rapid adaptation of capacity than before is possible, and the price elasticity of pulpwood demand can also increase. If the price elasticity of demand proves to be more than one, the future prospects of forest owners will become considerably bleaker.

Examination of the "business as usual", "declining wood imports" and "declining wood imports with additional conservation" scenarios shows that the single most important factor affecting forestry and forest management is the assumed development of roundwood imports, a factor that cannot be steered with the forest programme. Even on the government level, the possibilities of Finland to influence the situation are limited. It is also worth noting that, except for deciduous pulpwood, the differences in annual harvest volumes of other types of wood in 2015 in the scenarios are less than one million m^3 annually (although for birch sawlogs this would entail an increase of more than 60% compared to the "business as usual" scenario, which even the writers of the draft programme note to be exaggerated). By contrast, with the end of imports, the use of deciduous pulpwood will increase 51% (5 mill. m^3/yr) compared to the "business as usual" scenario, and 135% compared to the current situation.

Which of the scenarios will come true would seem to have little effect on the measures demanded of forest management and the eventual contribution of the State to forest management, with the exception of a strong need to increase the harvesting of deciduous roundwood. Because the development in scenarios S2 and S3 would entail a considerable increase in the price of deciduous pulpwood (43% from the current level), changes in production technology are likely, especially if there are problems in the physical availability of deciduous roundwood in addition to the price. In the past, the physical availability of deciduous pulpwood has been used as an argument for importation, and studies confirm that unlike in the case of imported sawlogs, the supply of domestic pulpwood is complemented, not substituted, by imports.

With the exception of sawmill industry, differences in production levels in forest industry are marginal in the scenarios. What are not marginal, however, are the differences in stumpage prices and stumpage earnings of forest owners between the basic scenario and scenarios S2, S3 and S5. If the current situation continues, the stumpage earnings of forest owners will increase at a rate of nearly 2% annually, and in the two other scenarios (S2 "declining imports" and S3 "declining imports and additional protection") at a rate of 3% per year. The changes follow directly from changes in the supply and demand of roundwood, which are difficult to estimate in the current situation. Development of the profitability of forest industry production is not commented on the basis of the SF-GTM model of the Finnish Forest Research Institute. According to the input-output account by Toropainen, however, no significant changes in profitability are foreseeable.

Compared to the Pöyry scenarios (2005), the results differ mostly because of assumptions made regarding the development of wood imports. Even in the basic scenario of the Finnish Forest Research Institute, harvest volumes of deciduous pulpwood are nearly double compared to Pöyry's calculations. Both in the Finnish Forest Research Institute scenarios and the Pöyry report, the production of mechanical forest industry is seen to decrease by 2015, while that of chemical forest industry will increase. The development of prices in the wood market is not reported by Pöyry.

3.4 Consequences for forestry and the National Forest Programme

Crucial factors affecting the development of the forest sector in Finland are

i) the development of the prices and demand of end products in the market areas of forest industry based in Finland. Sensitivity analysis for this development is not made, and
ii) availability and price of imported foreign roundwood.

Apart from the harvest volumes of deciduous pulpwood, differences in annual harvest volumes in the scenarios, expressed in 2015 levels, are minor on the national level. It should be noted that, according to the SF-GTM model, increasing the area of forest under conservation (unrealistic as such) to 5% of all forest area in southern Finland, thus adding to the effect of declining wood imports, will not have a significant effect on total removals, for example, or even on the gross stumpage income of forest owners. The result is probably in the right direction. Markets generally tend to smooth out the effect of exogenous quantitative shocks on economic development (cf. the impact of acid rain on the European wood market in the 1980s).

Differences between the scenarios regarding the impacts of forest management on waters, the recreational use of forests and/or forest biodiversity remain slight (with the exception of impacts on water quality of a significant increase in fertilisation and ditch reconditioning on peatlands (3b, 5b) which nevertheless is probably not a politically/economically justifiable alternative). Differences in the employment impacts of the scenarios are eclipsed by the predicted increases in productivity. It should be noted, however, that 1,670 more jobs will be lost under the "declining roundwood import with additional conservation" scenario than in the "declining roundwood imports" scenario. In other words, conservation has its cost. Nevertheless, it is not clear how employment impacts in tourism are taken into consideration in the input-output model.

The most interesting scenario is "bioenergy and new products". However, this is not examined in the SF-GTM model because of insufficient initial data on production technology and demand. The impacts of new products on removals (and apparently also on stumpage income) remain slight also in this scenario during the planning period used, as also noted by the authors. By contrast, increasing the annual harvest of forest chips to 12 million cubic metres cannot but have an effect on forest ecology and presumably also on the potential for recreational use and biodiversity. The impacts are not discussed sufficiently in the Finnish Forest Research Institute report.

In addition to harvesting wood for energy production, the scenarios suggest that the state of Finnish forests will also be affected by the growing demand for deciduous pulpwood. Under the S2 and S3 scenarios, logging of deciduous pulpwood are greater by 3 million m^3/year than in the "greatest sustainable removals" scenario. According to the Mela calculations, this would not appear to lead to significant problems with regard to "sustainability" on the national level, not even after the end of the planning period in 2015 (Salminen, 2007, p. 25).

The calculations should be taken with reservation, because models only describe real-world processes to a limited extent. It should be noted in particular that the models only apply to current industrial forest products, while new ones such as bioenergy are not accounted for in them. The development of a demand-oriented analysis would therefore require a closer modelling of the dynamics of wood-based industry. It must also be taken into account that the calculations only cover forest products, not forest-related services.

4. Recommendations of the interim report of the ex ante evaluation and how they are taken into account in the draft version of the NFP 2015

We shall next present an analysis of the draft NFP 2015 and examine whether recommendations presented in the Interim Report of the ex ante evaluation have been taken into account. The account is divided into the five sections given in the assignment for the ex ante evaluation.

4.1 Quality and functionality of the content and structure of the programme, Section I

The recommendations presented in the Interim Report of the ex ante evaluation team have generally been taken into account in the programme. The National Forest Programme should be a success strategy for the Finnish forest sector, and should incorporate the elements listed in Table 4.1. The table indicates how the recommendations have been incorporated into the draft programme. The structural recommendation concerning the strategy for improving the focus of objectives has not been taken into account sufficiently.

Table 4.2 indicates how the key future challenges presented in the Interim Report of the ex ante evaluation team have been taken into account in the NFP. The same for the visions, values and image of the forest sector and conflicts is presented in Table 4.3, and for other policies, programmes, national and international regulations and treaties in Table 4.4.

Table 4.1 Recommendations of the ex ante evaluation Interim Report for taking the elements of the success strategy of the Finnish forest sector into account

Section I Recommendations	**How these have been incorporated in the draft NFP 2015**
1. A clear, prioritised and guiding strategic intent based on the demand for forest products.	Demand orientation has progressed in the draft programme. However, the objectives are still predominantly production-oriented and emphasise the production of goods. The objectives should be extended into the service part of the value chain. Strategic intent is still lacking on the level of the national economy.
2. Objectives and targets that implement the strategic intent which are measurable and whose implementation with various measures can be clearly designated to respective responsible actors.	The goals and recommendations for action mentioned in the draft programme will for the most part lead to the attainment of strategic objectives. The target levels have been defined for the most part. Strategic objectives are based on varying intents of the respective actors and on a compromise attained through their harmonisation. There are very many targets, and some are even contradictory (e.g. increasing harvest volumes and improving profitability). Although the measures are now targeting the right goals fairly well, in the case of some of the recommendations for measures it remains unclear who should implement the measure and how.
3. Clear choices that focus the services, products and values.	The targeting of measures and inputs is still quite diffuse, and consequently their impact my remains small.
4. Strategic projects through which the strategy is to be implemented (project portfolio).	Recommendations for measures to lead to the attainment of various targets in the priorities sometimes describe existing projects or projects already in planning, but these have not yet been gathered in one place. Annex 1 of the programme (still uncompleted in September 2007) will be a plan of action in which the project portfolio will also be specified.
5. Determination of a common value base and beneficiaries.	Three common values have been specified for the forest sector. The beneficiaries are the entire society and its citizens. Moreover, individual measures have direct beneficiaries, who will probably be specified in the action plan under preparation (Annex 1 of the NFP).

Table 4.2 Recommendations of the ex ante evaluation Interim Report for taking into account future challenges

Section I Recommendations	How these have been incorporated in the draft NFP 2015
1. Challenges relating to globalisation (e.g. intensifying competition for natural resources) will be responded to more rapidly in the future: e.g. setting up an international think tank on forest management and environmental issues, to operate in conjunction with an existing organisation.	This has not been taken into account sufficiently in the draft programme. The main goal of the establishment of an international think tank is to influence international forest policy and to maintain and promote forest and environment-related issues in development cooperation.
2. Climate change and the ageing population should be included in all forest policies.	The programme has a separate priority for energy and climate change (2.3). Ageing population is taken into account by making provisions for shortages of wood and labour.
3. The goals of the NFP must be based on a clear prioritisation of the various functions of forests to correspond with the demand in different areas. Safeguarding the supply of domestic wood is a special challenge.	There remain deficiencies in the prioritising of the functions of forests, and no method for this has been devised on either the regional or the national level (e.g. forest management – tourism). On the other hand, the draft programme makes provision for the utilisation of regional strengths, such as improving the process of drawing up RFPs, etc.
4. Forest ecosystem services and the immaterial functions of forests should be promoted and a market as well as a suitable price created for them.	This has its own priority, Protecting the biological diversity and environmental benefits of forests (2.4), but the term "ecosystem services" is only mentioned under international forest policy.
5. The role of the Government in the implementation of the NFP will increasingly be the creation of a favourable operating environment, its role in actual implementation will decrease.	This recommendation has been taken into account partly, such as in references to competitive tendering. The role of the Government remains very strong, however, such as in the form of economic incentives (support for the Forestry Centres will increase, subsidies will increase). This has the effect of promoting the stability of organisations in forest management and prevents the development of new, innovative practices. State subsidies should be targeted more strongly than at present to R&D and innovation, at the cost of traditional subsidies.
6. In the short term: Problems in the availability of wood caused by the possible end/decline of imports of wood from Russia (incl. environmental aspects and diversity) will be solved. A key factor in this is to increase the willingness of forest owners to sell their wood.	According to the calculations of the Forest Research Institute, declining imports of wood from Russia (with or without additional conservation) will have surprisingly few consequences. The decline in wood imports has nevertheless been taken into account well, and in one of its priorities the programme focuses especially on the acquisition of domestic wood for the market (Objective 2.1.1).

Table 4.3 Recommendations of the ex ante evaluation Interim Report concerning the vision, values and image of the forest sector and conflicts

Section I Recommendations	How these have been incorporated in the draft NFP 2015
1. The vision of the NFP must describe a challenging strategic intent for the future. The vision must be concise, inspiring and dynamic and specify the ways the forest sector will distinguish itself from the competition.	The new vision "More welfare from forests" is concise and to the point. Its implicit values are also tougher than before; replacing the word "sustainable" with the word "more" is an apt description of our time. In the previous version, the word "diverse" also emphasised the welfare of forests, not only that of citizens and/or the economy. The vision still does not describe a strategic intent or distinguish us from the competition.
2. Stakeholders "negotiate" common values for the programme to which the implementers can commit to, with sustainable forest management included in the value base.	Three common values of the stakeholders are included in the programme. They are: Nature is valued by actors in the forest sector, Forest sector operations must be competitive, and Cooperation is valued in the forest sector.
3. Sufficient resources are allocated to communications regarding the programme to improve the image of the forest sector. Implementation of the programme includes clear communications concerning diversity in the use of forests by taking into account changing social aims as well as the aims of forest owners.	The section on communications is still incomplete in the draft version. Communication is based on an annually prepared communications plan. The importance of communications is emphasised under the various objectives. Equality must not be forgotten when communications are planned, nor the diversity of aims of the forest owners.
4. Conflict resolution in forest management is developed further with a view to finding new ways for operating and increasing dialogue.	Better instruments to avoid conflicts are searched for in the RFP process, but no model for resolving the issue is presented as yet.
5. The key actors and beneficiaries of each objective or sub-programme must be identified.	Annex 1 of the NFP will be an action plan which will in all probability identify the key actors and beneficiaries for each objective or sub-programme. Equality must not be neglected.
6. Market orientation and links to other programmes.	The benefits of the market mechanism and customer orientation for improving efficiency and competitiveness have been laudably taken into consideration in the presentation text of the draft programme, the priorities, their objectives and measures. Links to other relevant programmes are also mentioned, but only the implementation of the programmes will ultimately show how the cooperation works.

Table 4.4 Recommendations of the ex ante evaluation Interim Report concerning other policies, programmes, national and international regulations and treaties

Section I Recommendations	How these have been incorporated in the draft NFP 2015
1. Other policies and programmes are taken into account in the implementation of the NFP when the policy requires actions on the part of the NFP as implementer, or in the case of overlapping aims or measures. The responsibilities must be negotiated case by case with other ministries and actors.	This recommendation cannot be read in the proposals for action, but in between the lines one can tell that other policies and programmes have been taken into consideration well. Real cooperation will be tested when the programmes are implemented.
2. The document on forests of the 7th United Nations Forum on Forests contains 26 recommendations concerning national forest policy. These recommendations must be studied to ensure that they are taken into account in the National Forest Programme.	The recommendations seem to be included in the NFP 2015 draft document. The recommendations also make reference to things that are not included in the draft document, such as equitable sharing of benefits, forest law enforcement and good governance, and partnerships.
3. The Development Policy Programme of the Ministry of Foreign Affairs must be taken into account more clearly than at present in the preparation of international forest policy.	The programme (also the new Development Policy Programme) has been taken into account, as well as the programme for the prevention of illegal logging.

The draft NFP 2015 still has seven priorities, although the evaluation team recommended only six. The draft programme differentiates nature and environmental benefits of forests from energy and climate issues, which is undoubtedly justified because of the extent and topicality of these issues.

The recommendation of the evaluation team concerning +1 priority is taken into account: the draft programme includes the system for implementation, monitoring and development of the programme, which aims at an efficient and participatory system for the planning and implementation of forest policy and for high-quality and cost-effective provision of public services needed by the forest sector. The NFP process remains too administratively oriented.

The recommendations of the ex ante evaluation team are taken into account fairly well in the measures proposed in the programme. The measures are for the most part concrete and have the potential of leading to the achievement of the aims as they have been laid out. More detailed comments on the aims in the priorities and proposals for action are given in the matrix in Annex 1. Concrete measures for opening the market for competition are still lacking, however.

Recommendations of the Interim Report concerning strategic objectives, i.e. priorities, and how they are taken into account in the draft programme are presented in Table 4.5.

Table 4.5 Recommendations of the ex ante evaluation Interim Report for the six priorities of the National Forest Programme

Section I Recommendations	How these have been incorporated in the draft NFP 2015
1. Companies, entrepreneurs and networks satisfy the needs of customers in a market-oriented and competitive manner.	The priority of NFP 2015 **2.1 Securing a competitive operating environment for a developing forest industry** is in line with the recommendation; securing a customer-oriented and competitive operating environment for the forest industry. Forest cluster thinking is built into the draft programme, as are new forest-based products. A good set of measures is defined for the objective of **Securing the supply of competent labour** (2.2.3) and they can lead to the achievement of the objectives; however, gender equality in the improvement of working conditions and training are yet to be mentioned in the programme. Taking the special needs of women into account would bring a great deal of reserve labour into the sector.
2. Forest and wood market services meet the needs of forest owners and their provision is based on efficient competition.	The NFP 2015 priority **2.2 Forest management is profitable** is in line with the content of the recommendation. Efficiency of operations, competitive tendering, customer satisfaction and the needs of forest owners are taken into account in the measures. Concrete measures for opening the market for competition are lacking.
3. New innovative products, services and expertise are developed and commercialised with risk taking.	The draft NFP 2015 has no priority for this, but the matter is covered under **priority 2.1**. More resources are needed for R&D. There is also a need for change in attitudes and for change management. Recommendations for measures focus too much on the production of goods, the focus should be shifted towards improving service provision.
4. Nature and environmental benefits of forests (incl. climate change and bioenergy) are safeguarded and commercialised and markets for them are created.	Climate change is covered by the NFP 2015 priority **2.3 Increasing the energy and climate benefits of forests**, and environmental aspects are covered in **2.4 Ensuring nature and environmental benefits of forests.** Two partly conflicting aims are mentioned under energy and climate benefits: increasing use of wood-based energy and ensuring a competitive energy supply for the forest industry. Even if the latter were to be understood to refer to nuclear energy, in the recommendations for action it is noted that increasing the supply of wood-based fuels must not endanger the supply of industrial wood.
5. Recreational and tourism services utilise forests experientially.	This recommendation is covered and even exceeded in the NFP 2015 priority **2.5 Forests support regional development and provide a source for culture and recreation**. The clear separation of business-related objectives and objectives involving recreational use (objectives 2.5.4 and 2.5.5) is an excellent decision which also clarifies the definition of the necessary measures. Inclusion of landscape conservation in the programme is also important.
6. Implementation of the principles of sustainable forest management are promoted vigorously and globally by international forest policy so as to create fair conditions for competition for Finland, while mitigating the poverty of people in developing countries who are dependent on forests.	The NFP 2015 priority **2.7 Sustainable forest management is supported by international forest policy** needs to be sharpened. International forest policy in Finland is already quite active, now the aim must be to promote the success of international forest policy and to reduce social risk, in particular in areas of artificially regenerated forests where growth is rapid. This will increase the fairness of competition between forest products producing countries.
7. An additional programme is needed for the implementation of the six priorities, "Administration and range of measures in the forest sector will be modernised".	**The system for the implementation, monitoring and further development of the programme** is expected to support the implementation of the objectives. The aim is that the system for planning and implementation of forest policy will function efficiently and in a participatory manner, and that the public services needed by the forest sector are produced in a high-quality manner and cost-efficiently (incl. the development and implementation of a purchaser-provider model).
8. Strategic goals, quantitative targets, key actors, beneficiaries and project portfolio are determined for all priorities.	The levels of the strategic aims in the priorities differ markedly from one another. Some of the quantitative goals, key actors, beneficiaries and project portfolio are still in process. Commitment of the private sector (incl. industry and forest owners) has not yet been sufficiently ensured on the level of measures.
9. Strategic aims should be clearly demand-based, but they should also be derived from social goals.	Recommendations for action that support these goals are still too much production-based, and the indicators inferred from them are based on input, not output.

4.2 Functioning of the system for implementation, monitoring and evaluation, Section II

The recommendations in the Interim Report are partly taken into account in the draft programme. The greatest problem in the programme is still the role of the State and in particular finding a market-oriented way for implementing the programme. Table 4.6 presents how the recommendations of the ex ante Interim Report are taken into account in the draft programme.

Indicators are still undeveloped in the draft programme, and they have yet to be adjusted properly.

Some of the recommendations of the Interim Report have been taken into account in the draft. The greatest problem still relates to the role of the State and, in particular, finding a market-oriented working method in the programme implementation. Table 4.6 presents how the recommendations of the ex ante Interim Report have been taken into account.

The indicators were still incomplete in the draft and their further specification was under way.

4.3 Environmental impacts of the programme, Section III

Table 4.7 presents the recommendations of the Interim Report concerning environmental impacts and how they have been taken into account in the draft NFP 2015.

Table 4.6 Recommendations of the ex ante Interim Report for the development of the implementation, monitoring and evaluation system of the forest programme

Section II Recommendations	How these have been incorporated in the draft NFP 2015
1. The set of instruments of the State should be revised so that the State ensures favourable conditions for operation, but is not itself an active agent in the sector.	The role of public administration remains significant in forest advisory services, forest management services, and education and training. Direct inputs by the State and resource allocation for actors in the forest sector should be developed to make room for private companies and innovations.
2. The roles and functions of organisations in forest management will be clarified to correspond to the changing operating environment (incl. competitive tendering).	Clarification of the role of organisations in forest management has been taken into account to a certain extent in strategic objectives, the targets defined under those objectives and the recommendations for action (e.g. points 2.2.3-9, 2.2.3-10, 2.5.1, 2.7.3 and 3), as has the improvement of operations and market-orientation (see Section 1). The strategic aim should be even clearer and more challenging. Some resistance to change can be anticipated, and attention must be paid especially to change management.
3. The role of the State as promoter of innovations and entrepreneurship in the forest sector should be emphasised.	Has been taken into account to a certain extent in the draft programme (points 2.1.2, 2.3.1, 2.3.2, 2.5.2, and 2.5.4).
4. The functions of the programme must give special emphasis to the profitability of forest management and the preconditions of forest entrepreneurship, for without profitable forest management forest owners will not be motivated to carry out loggings and manage their forests sustainably, and the roundwood produced by them will not be competitive internationally.	This recommendation has been taken into account on the level of targets (points mentioned above and point 2.2.2), but the proposals for action are partly contradictory to the goals that have been set. All functions should be internationally competitive and support forest management as a form of sound entrepreneurship. Return on investment should be adopted as the primary aim from which harvesting targets and other quantitative targets for management are derived. Economic definition of the profitability of forest management (return on investment) is not given sufficient weight in the draft programme as an instrument for guiding measures, and the proposed measures may actually weaken its position.
5. Actions that correspond to the prioritised objectives of the programme must have designated implementers. The implementers must either be obligated to discharge the duties assigned to them, or commitment to the same must be ensured in a participatory process.	The targets remain partly unprioritised. In some cases an implementer has been designated, but in many others this has not yet been done in the draft programme.
6. Practical indicators for the strategic aims of the programme are defined using the existing monitoring system.	Has been started, but still partly incomplete.

Table 4.7 Recommendations of the ex ante evaluation Interim Report concerning environmental impacts

Section III Recommendations	How these have been incorporated in the draft NFP 2015
1. Support for nature management as well as associated employment and regional projects should be promoted in the financing of sustainable forestry, using the NFP.	The aims and monetary reserves for the implementation period in the programme will be reviewed immediately after the turn of the year 2007/2008, when the RFPs for 2006–2010 are reviewed. It is not certain whether the current budgeted reserves will be sufficient in all cases on the regional level, when new aims have to be set for nature management. This applies to sufficient resource allocation for advisory services and advance planning, for example.
2. The risk profile of climate change must be clarified through research, and provision must be made for adapting to it.	The programme contains provisions for increasing multi-disciplinary and anticipatory research on the impacts of climate change on forest ecosystems, the use of forests and adaptation to climate change. Considerable resources for anticipatory research are needed, as well as for safeguarding biodiversity and for adapting non-wood functions of forests to the risks caused by climate change.
3. A sector-specific prioritised action programme for increasing energy savings, energy efficiency and the use of renewable energy is needed, one that is in line with the current Government Programme and EU goals.	No goals or resources have been set for energy savings and the improvement of energy efficiency in the programme, even though they are required by the EU Energy Services Directive. The new national energy and climate strategy under preparation will include targets and actions for energy savings and the improvement of energy efficiency; these can be integrated into the NFP and its implementation. Finland's goals for bioenergy will receive a concrete description during 2007 as a result of negotiations with the EU. The programme should make provision for upward adjustment of the target concerning the use of forest chips/forest bioenergy.
4. National implementation of the Water Framework Directive and in water management areas, and the review of Finnish national water legislation, especially as regards small water bodies, calls for good advance planning in forest management, for which sufficient resources must be included in the NFP.	The draft programme makes provision for extended regional planning of water management and its implementation in forest management, one in which geographical information systems (GIS) can be used. This will facilitate planning and monitoring to be done by water management areas as set down in the Water Framework Directive, and also enable the identification of sensitive areas and areas with high risk for loads, as well as good planning. Sufficient resources must be reserved in the programme for the identification and implementation of best water protection practices. Sufficient resources must also be reserved in the programme for cooperation between experts in the protection of waters, biodiversity and forest management within practical water protection; this can be achieved by organising joint training, for example.
5. The implementation of the Water Framework Directive and the revision of water legislation will increase the need to review the Act on the Financing of Sustainable Forestry in order to secure sufficient monetary resources for the implementation of new regulations.	The programme makes provision for adjustments required by the Act on the Financing of Sustainable Forestry.
6. The impacts of increasing the harvesting of energy biomass on water, soil, diversity, nutrient cycle and carbon balance must be evaluated and taken into consideration in forest management. This calls for additional research.	Energy balance is a good indicator for the ecological and economic sustainability of the production of energy biomass or other biofuels. In practice, however, their utilisation calls for multi-disciplinary research and a more detailed assessment of environmental impacts. The programme must make provision for sufficient allocation of resources for research as part of research on climate change, for example, or with funding from the Ministry of Trade and Industry and the Ministry of Agriculture and Forestry as part of the preparation of the new national energy and climate strategy.
7. New forest products and services will have mainly positive environmental impacts (ones that raise the value added). Increasing production of bioenergy may nevertheless lead to various positive or negative impacts on the regional or local level. These should be studied separately.	The programme presents a wide variety of new opportunities for products and services that would have positive environmental and social as well as human impacts. The impacts will in all likelihood also increase the value added or other social benefits, which are not all measurable in money. However, there is as yet insufficient knowledge about the environmental and social impacts of individual biofuels, such as forest energy, to serve as a basis for decision making or to forecast the overall impacts of wide-scale production. This can be studied either as part of a broader research programme on adaptation to climate change, or with funding from the Ministry of Trade and Industry and the Ministry of Agriculture and Forestry as part of the preparation of the new national energy and climate strategy.
8. The positive synergy benefits of forest management, tourism and the multiple and recreational functions of forests should be identified, to thereby increase benefits for regional and local economies (i.e. forest tourism, nature tourism).	The significance of diverse rural entrepreneurship for regional and local economies are recognised in the programme, with reference made to material and immaterial forest products and services as well as the market for nature and health tourism. It remains uncertain how sufficient the resources in the programme are for the development and marketing of new products and services and for increasing cooperation between professionals in the fields of tourism and nature entrepreneurship to recognise markets and secure access to markets.
9. A set of indicators is drawn up for monitoring environmental impacts. The indicators serve as a basis for reporting and corrective measures both nationally and internationally.	There are indicators for impact and performance in the programme. However, in water protection, for example, the indicators should certainly be improved to comply better with the requirements of the Water Framework Directive, in which case a set of indicators that measure only environmental loads will not be sufficient in the future to describe the conservational and ecological status of waters. The indicators in the programme need to be complemented.

4.4 Impacts of the programme on forest biodiversity, Section IV

Table 4.8 presents how the recommendations of the ex ante evaluation Interim Report for the protection of biodiversity are taken into account in the draft NFP 2015.

Table 4.8 Recommendations of the ex ante evaluation Interim Report concerning the protection of biodiversity

Section IV Recommendations	How these have been incorporated in the draft NFP 2015
1. The positive experiences gained from the Forest Biodiversity Programme for Southern Finland (METSO) provide justification for developing voluntary conservation measures throughout the country, as long as sufficient resources for implementation during the programme period are secured. At the same time, provision should be made for the revision of the Act on the Financing of Sustainable Forestry to promote the protection of biodiversity also from the perspective of water protection.	Quite rightly, the programme makes provision for implementing old conservation decisions during the programme period, and for increasing the proportional area under conservation significantly in southern Finland. The range of measures in the programme is diversified and positive experiences from the METSO I programme are extended to cover the entire country. The set of measures for commercially managed forests places an emphasis on voluntary measures, which has the effect of increasing the social acceptability of conservation and management, and reduces the cost pressures of conservation. Provisions for reviewing the Act on the Financing of Sustainable Forestry are currently being made, and this has been taken into consideration in the preparation of the METSO II programme.
2. The resources mentioned above could initially be targeted to Natura areas, for example, since these are both socially and economically significant and lack management plans for waters.	These are not mentioned separately in the programme; this aspect should be specified in the programme in the future.
3. The programme should ensure the practical utilisation of latest research and experimental results regarding the conservation of biodiversity and water protection, that is, in advisory services for forest owners, forest management planning, and anticipatory planning as well. This would create the necessary preconditions for the implementation of locally and regionally more effective nature management measures. Current measures may slow down the deterioration of biodiversity, but they fail to meet nationally and internationally defined targets.	The programme does make provision for resources for advisory services and planning, but it remains uncertain whether the current levels are enough to ensure that the targets are achieved. In water protection, for example, best conservation practices also promote the protection of biodiversity, and therefore it is justified that resources for them are allocated in the programme.
4. Latest research results (national and international), such as the monitoring studies conducted for the for METSO programme (Deficiently Known and Endangered Forest Species in Finland (PUTTE), Forest Biodiversity and Monitoring Programme (MOSSE), other biodiversity research) all require regional and ecosystem approach.	Conservation aims are basically defined on the regional level. The programme should ensure and enable the conservation of sufficiently large habitats and biotopes.
5. Economic incentives can be developed and entrepreneurship supported by promoting competition in the supply of planning and advisory services for forest management and environmental management. This would also provide an opportunity to diversify the aims and measures of forest management and to mitigate damaging environmental impacts and strengthen positive ones. This will also strengthen customer orientation in advisory services and planning, and will ensure that the aims of forest owners are taken into consideration better than before.	The changing preferences of forest owners are recognised in the programme, as well as the increasing emphasis on the immaterial benefits and values of forests. It remains uncertain, however, whether the resources are enough for sufficiently broad advisory services, in which roundwood production is only one of the future aspects of consultancy. Multiple-effect and diverse advisory services should cover at least the needs and aims of landscape protection, water protection, climate and recreational use.

4.5 Impacts of the programme on balanced regional development and gender equality, Section V

4.5.1 Impacts on balanced regional development

Table 4.9 presents how the recommendations of the ex ante evaluation Interim Report for balanced regional development are taken into account in the draft NFP 2015.

Table 4.9 Recommendations of the ex ante evaluation Interim Report for the promotion of balanced regional development

Section V Recommendations: Balanced regional development	How these have been incorporated in the draft NFP 2015
1. The National Forest Programme under evaluation must include mention of monitoring and evaluation indicators for balanced regional development, also suitably differentiated by gender.	These are entirely lacking from Section 2.5.1.
2. Monitoring and evaluation of the promotion of regional development and regional balance must be added to forest management and environmental reporting of the RFPs.	Section 3 of the draft programme promises additional resources for such operations, but actual instructions for monitoring and evaluation are lacking.
3. In the monitoring of regional forest programmes special attention must be paid to measures which in the ex ante evaluation are judged to have a significant effect on the promotion of regional development. They have the effect of establishing best practices also for the promotion of regional balance. Beneficiaries of the measures must also be considered from gender and generational perspectives.	The specification of beneficiaries (Annex 1 of the draft programme) is still incomplete.
4. The views of stakeholders and experts representing different genders and generations should be utilised more broadly in the review of Regional Forest Programmes.	Sections 1, 3 and 4 of the draft programme mention the need for broader utilisation of stakeholder views, but this matter will not be specified until the presentation of beneficiaries and the action plan are completed.
5. The target-oriented mechanism for regional development and balance within national and regional programmes should be clarified.	Sections 1 and 3 of the draft programme promise to develop the relationship between the NFP and the RFPs. It also presents the idea of a need to harmonise these regional levels. However, the steering/harmonising mechanism for regional development in the NFP remains unspecified.
6. The organisations responsible for the preparation of the programmes should be presented directly in the programme document.	The annex in question is still incomplete.
7. The relationship of Regional Forest Programmes to other regional plans, programmes and land use plans (of which there are about 10 in each region) should be specified. Such specifications should be prepared both from a judicial-administrative perspective and from the viewpoint of implementation.	The relevant Annex 4 is not finished, but the need for such harmonisation is mentioned in Section 1.3.

4.5.2 Impacts on gender and generational equality

Table 4.10 presents how the recommendations of the ex ante evaluation Interim Report for the promotion of equality are taken into account in the draft NFP 2015.

Table 4.10 Recommendations of the ex ante evaluation Interim Report for the promotion of equality

Section V Recommendations: Promotion of equality	How these have been incorporated in the draft NFP 2015
1. Key statistics in the forest sector should be differentiated by gender. These include - economic status (income of forest employees and forest owners), - education on different levels, - employment (men and women in the sectors of the forest cluster), and - opportunities for men and women to participate in the boards of organisations and companies, and in representative bodies.	The forest sector is very much male-dominated. Key statistics in the NFP are still undifferentiated with respect to gender. The growing number of women among forest owners is mentioned under the passage on the structure of forest ownership in section 2.2.2 (in practice it is already 40%, but this is not mentioned in the text). It should also be mentioned in connection with the need to ensure the supply of competent labour that only 18% of employees in the sector are women, 10% among forest entrepreneurs (7,000 in all), 1% among forestry workers and about 5% among forest machinery operators. Women's greater participation could facilitate solving the labour shortage.
2. The programme should set out clearly development challenges both generally and differentiated by target group and gender, when this is justified.	In the discussion on development challenges, women are not taken into account as a resource that has a bearing on the supply of competent labour, forest ownership, entrepreneurship and innovation in the sector. By contrast, children and young people have been taken into consideration quite well in sections 2.5.7 and 2.6.4.
3. The objectives and expected results of the programme should be prioritised and presented in relation to the challenges by target group and by the operating environment.	See above.
4. Gender equality should be mainstreamed into the NFP 2015 and opportunities created for both women and young people to participate in the implementation of regional programmes together with networks representing different social groups. The promotion of equality by mainstreaming and through the use of special measures, and also in the form of HR policy and section-specific measures, is presented below.	No arguments are presented in the programme on how the envisaged measures would lead to desired results.
5. The programme should specify the mechanisms that would lead to the desired results.	No measures are as yet presented in the programme for the management and coordination of networks of different actors, nor is it specified how interactive participatory processes could be supported by using professional mediators.
6. Gender equality should be mainstreamed throughout the entire programme and special measures should be undertaken when they are justified.	The programme has not as yet been mainstreamed, nor are any special measures proposed that would address the position of women.

5. Ex ante evaluation, impacts of the draft programme and recommendations for further action

The ex ante evaluation team assessed version 3.1 of NFP 2015 (dated 10 September 2007) by using the evaluation questions presented in the original tender. The evaluation questions were answered first on the basis of the Future Review for the Forest Sector, and then again on the basis of the draft NFP 2015.

5.1 Quality and functionality of the content and structure of the programme, Section I

Assessment of the content and structure of the programme was based on evaluation questions provided in the assignment brief. The recommendations of the Interim Report have in many cases been taken into consideration, and the draft programme has been improved significantly during the process. Prioritising of the strategic objectives of the programme and the choice of related targets remains deficient, leading to scattered targeting of resources and reduced impact. However, the targets are still mainly production-oriented and emphasise the production of goods. The targets should be extended into the service part of the value chain.

The logic between targets and measures has clearly been improved, but there still remain too many targets that are not aligned with each other and do not present a coherent whole, and some are even contradictory (such as increasing both harvesting volume and profitability).

The greatest challenges in the near future are improvement of the profitability of domestic forest industry and the supply and market availability of roundwood, especially if roundwood imports from Russia decline as a result of tariffs on wood. Changes in population and social structure will also have the effect of reducing the supply of wood. Challenges in wood supply are addressed fairly well in the draft programme.

In the long term, the challenges are more serious. Key long-term challenges of the forest sector include climate change and changes in the national and local operating environment caused by globalisation, which means a shift "from investments to innovation". How will the forest sector develop from the production of bulk goods and raw-material-oriented thinking towards modern service production, when the greater part of income should become from the provision of services that are based on material and immaterial forest products? The greatest drivers for change may stem from future structural rearrangements to improve the profitability of domestic forest industry. The realisation of this scenario would offset some of the problems deriving from insufficient roundwood supply.

In order to increase the turnover of the forest cluster from the current 40 billion euros to the envisaged 60 billion euros in 2015 (the suggested indicator for impact), all research ideas should be well into development by now. Metsäklusteri Oy was not established until March 2007, however. In May it was nominated a strategic centre of excellence, and its research programme is still under preparation. In 2006, the investment in R&D in the three largest forest industry groups was a mere 0.45% of their turnover, and fell by 10–14 percentage points compared to 2005. Metsäklusteri Oy does not cover the entire field of research and industry: sawmills are not included, nor are the packaging and furniture industries, or nature and recreational services.

The choices that have been made are based on a compromise reached with stakeholders, which may be a weakness in the programme. Better instruments to improve collaboration are searched for the RFP process.

The programme had already taken the development programmes of other sectors well into account earlier. There are improvements in the draft programme on how national and international treaties and regulations are taken into consideration. Other important policies and treaties are taken into consideration successfully in the programme (clear improvements are the inclusion of water protection and EU FLEGT, and Finland's role in the legislative process of the EU). On the positive side is the inclusion of a more comprehensive section 3, Implementation, monitoring and further development of the programme (cf. NFP 2010)

The vision of the programme has been altered. Although the new vision is more concise, it is not dynamic: it is not clear what are the things that the programme is intended to achieve and how Finland is to be better than other countries. The programme makes reference to three common values of the forest sector, which are based on sustainable forest management.

A clear strategic intent and the means for distinguishing the Finnish forest sector from other operators in the market remain undefined. The programme does contain a long list of measures, some of these partly contradictory (such as 1. increasing fertilisation and ditch reconditioning vs. ensuring the quality of water and soil, or 2. increasing Government subsidies vs. increasing productivity and supporting entrepreneurship).

Communications still do not receive enough attention in the programme. The image of the programme and communications about it should be designed to emphasise responsible market and customer orientation, whether in the context of material or immaterial forest products.

Table 5.1 presents an assessment of the functionality of the content and structure of the programme.

Table 5.1 Assessment of the functionality of the content and structure of the programme, Section I

Questions	Responses/ Future Review for the Forest Sector	Responses / Draft programme
1. Is the programme clear and consistent: - Are the strategic objectives and targets of the programme sufficiently clear, and do they contain clear strategic choices? - Are the vision, strategic objectives and targets and the proposed measures mutually consistent? - Are the available resources focused in keeping with the strategic choices made in the programme? - Does the programme respond to the changing challenges in the future operating environment, and does it make use of emerging opportunities? - Are the emphases in the programme correct ones considering the work of the working group done under the National Forest Council and from the perspective of stakeholders and market and customer orientation?	- Clear strategic choices are lacking on the level of the national economy, RFPs are largely based on roundwood production, not market oriented. - The priorities in the Future Review are still not clearly demand-oriented strategic objectives, nor do the measures listed under them lead clearly to the achievement of the set goals. - The Future Review does not contain strategic choices, nor does it yet contain a clear prioritisation on where the resources are to be focused. - Not entirely, see detailed account presented in Annex 4 of the Interim Report. - Sufficient attention is not paid to market or customer orientation in the Future Review.	A clear, prioritised and concrete strategic intent is still lacking on the level of the national economy. Strategic objectives and targets are based on varying intents of the respective actors and on a compromise reached with them. The goals and recommendations for action mentioned in the draft programme will for the most part lead to the attainment of strategic objectives. The logic between goals and measures has clearly improved, but there are still too many goals. A much better response is made to future challenges, including climate change, shortage of labour and declining wood imports from Russia, but globalisation is seen as a threat, not an opportunity.
2. Does the programme take into account - experiences from the implementation and assessment of NFP 2010?	- Fairly well. Some of the recommendations for further development can be realised in the long term, some are outdated. - The mechanism for solving conflicts still needs to be developed, although a great deal has been done. - Impact of the programme on the operations of other sectors could be improved. - Detailed account was presented in Annex 5 of the Interim Report.	The situation has not changed. Better instruments to avoid conflicts are searched for in the RFP process, but no model for resolving the issue is presented as yet.
3. Is the programme - harmonised with other significant policies and programmes, and - does the harmonisation create added value? - Is market and customer orientation included in the cross-sectoral account?	- Fairly well. The Development Policy Programme of the Ministry of Foreign Affairs has not been taken into account. - Not yet sufficiently. - Detailed account was presented in Annex 6 of the Interim Report.	Still fairly well, and the Development Policy Programme is now taken into consideration. There is as yet insufficient understanding of the role of market orientation.
4. Does the programme take into account - national and international regulations and treaties?	- Yes, fairly well. The programme should also take into consideration the impacts on the forest sector of EU policies on agriculture, environment, energy, climate, rural areas, etc. - The Water Framework Directive must be taken into account. - The ENAFLEG[1] agreement requires that Finland incorporate the FLEGT programme in the NFP. - The non-binding document of the UN Forum on Forests contains 26 recommendations for national forest policy. - Finland plays an important role in the preparation of the EU Forest Strategy and Programme and other forest-related legislation in the EU. - Detailed account was presented in Annex 7 of the Interim Report.	No changes. The draft programme represents an improvement in terms of water protection. The same applies to illegal logging. Has been taken into account for the most part. This role is now foregrounded more clearly than before (section 2.7.1).
5. Does the NFP 2015 comply with - the European principles set for national forest programmes in Resolution VI of the Vienna Ministerial Conference? - the key criteria set for forest programmes under the COST E19 programme?	- Yes, fairly well. Participation: the role of the Forestry Centres is very great currently. Regional universities and other actors must also be included. Partnerships: cooperation still needs to be developed. Commitment of the corporate sector to the NFP must be secured. - Fairly well. Intersectoral coordination: It must be taken into consideration that the policies of other sectors will affect the forest sector, not just the other way round. Planning process: there seem to be quite many predefined goals. Decentralisation of administration is fairly successfully implemented. Monitoring and data gathering need to be developed further. - Detailed account was presented in Annex 8 of the Interim Report.	The draft programme makes reference to cooperation in the preparation of the RFPs (section 2.5), but not otherwise. The same comment still applies.

[1] Europe and North Asia Forest Law Enforcement and Governance

The draft NFP 2105 still has a separate priority **2.6 Improving competence and competitiveness in the forest sector through education R&D/development work**, but strictly speaking this is a precondition for the attainment of all other goals. Education is mentioned at seven points in the draft programme as a measure for attaining the objectives (objectives 2.1.2, 2.2.1, 2.2.3, 2.3.2, 2.4.2, 2.4.3, and 2.5.5). Education and R&D can be considered an independent strategic objective, because the partial targets of all other objectives require resources for education and research in order to be attained. Promoting knowledge about forests among children and young people (objective 2.6.4) is already included partially in objective **2.5.7 Maintenance and development of forest-based culture**, but owing to the importance of this matter it may be justified to retain it as an independent entity. The place of objective 2.6.5 Strengthening futures work in the forest sector might still be reconsidered.

Additionally, we suggest the inclusion of a new objective under 2.6: **Special support to attract women to the forest sector and development of advisory services for women**. Because the forest sector is very much dominated by men, attracting women to the sector could be one possible solution for both labour shortage and wood supply. However, this would call for tailored education and training and more efficient advisory services for women.

The competitive advantages and aims of forestry and forest management might be secured by developing a suitable corporate governance model, that is, a corporate format that would be suitable for forest owners and for securitisation. Such a corporate model would enable

i) indirect forest ownership that would be on a par with direct ownership as regards taxation; in other words, a simple taxation regime would be implemented for investors (there would be no need tax concessions as such);
ii) the owning organisation and the organisation specialising in forest management could be kept separate when necessary;
iii) forest management could be the principal line of business; and
iv) forest investment would be made possible for institutions and persons who have not owned forest before (transferable and liquid share).

Such a corporate governance model would also improve the profitability of forest management. For this reason the evaluation team is of the opinion that the most important measure proposed in the programme is the development of a form of limited liability company suited to forest owners (under objective 2.2.2.).

Recommendations for improving the content and structure of the programme are as follows:

1) The vision should define a challenging strategic intent for the future and specify the means for distinguishing the Finnish forest sector from the competition.
2) The primary objective of the programme must be the long-term viability of the forest sector.
3) The most important measure proposed in the programme is the development of a form of limited liability company suited to forest owners (under objective 2.2.2.). It would allow
   - indirect forest ownership (equal taxation)
   - the separation of forest ownership and the operative management of forestry
   - forest management to be the principal line of business
   - the expansion of investment in forests.

   and lead to improved profitability of forest management.
4) State subsidies should be targeted correctly; competitive tendering and improvement of the efficiency/profitability of forest management.
5) Regardless of the final amount of resources (still open in September 2007), the efficiency of measures relating to different targets must be improved and the number of measures reduced.
6) Of future challenges, globalisation calls for a great change in the attitudes of the industry, as well as rapid actions for the development of new products and research instead of maintaining current structures.
7) The equality of women and men as beneficiaries, in education and at work must be taken into account better than at present.
8) International forest policy might be used to promote social sustainability in a developing market (think tank).

5.2 Functioning of the system for implementation, monitoring and evaluation, Section II

An action plan was still lacking in the draft NFP 2015. The assessment in this section is based on a draft for the action plan dated 2 August 2007.

The target level of the programme is ambitious, which is a good thing, for it compels vigorous implementation. What is new is that an attempt is made to specify responsible agents, operators, financiers, funding, beneficiaries and schedule of implementation for all measures envisaged in the programme already in the planning stage. It may therefore be assumed that the allocation of responsibilities will function better than before. Resource allocation in the programme should be linked to its impact and performance by using, for example, a three-year "sliding" average in the monitoring of the target level and actual performance.

The current regional monitoring and procedural reporting system in the programme is functional, but it contains several points that need further development.

The major challenges in the implementation of the programme on the regional level are to create preconditions for profitable entrepreneurship in the forest sector and to improve the profitability of forestry and forest management. Profitability would attract new

operators into the sector and encourage owners to increase the size of their holdings, which would solve many of the current problems. The principal aim of the programme, to increase the volume of logging considerably, may actually decrease profitability. Return on investment (measured by the ratio of net result to original investment) must be adopted as the key indicator of profitability in the forest sector.

The roles and functions of the organisations in the forest sector should be defined clearly enough to respond to the challenges of the operating environment and to secure equal competitive position for companies and advisory organisations in the sector. The roles of the organisations have not been addressed with sufficient rigour in the programme, although their development has been taken into account on the level of measures. Increasing State subsidies will further weaken the productivity of State-funded organisations, and thereby also the operating conditions of forest entrepreneurs in the long-term.

It is vital for the proper functioning of the monitoring and evaluation system to implement national targets on the grassroot level. Targets should be specified for different levels and actors. The implementation of measures should be monitored constantly on every level using feedback produced by relevant indicators. Indicator data can be used to make adjustments on a semi-annual basis. Resource allocation must be reviewed on the basis of actual performance (carrot and stick thinking). Commitment from different operators must also be secured within the participatory process of programme implementation. Currently the NFP process is overly administrative; there is insufficient commitment from the private sector (incl. industry and forest owners) to implementation on the level of measures, even though they are actively involved in the planning.

Assessment of the system for implementation, monitoring and evaluation as presented in the draft programme is presented in Table 5.2.

Indicators are still undeveloped in the draft programme, and they have yet to be adjusted properly. The indicators of the NFP 2015 are divided into two categories, impact and performance indicators. The division is justified as such. The impact indicators seek to describe the achievement of the actual target, whereas performance indicators seek to show how well or to what extent measures designed to attain the target have been implemented. However, it is not possible to infer directly from the performance indicators whether a target has been achieved or not, and monitoring focuses instead on the implementation of the action plan. The idea is that, although direct impacts cannot be demonstrated, measures nevertheless have a positive, albeit indirect, effect on the achievement of the target. From this perspective, the proposed set of indicators is reasonably good. Problems are

1) The indicators are not completely valid. For example, the profitability of forest management is measured exclusively by net result per hectare, whereas it should be monitored using both a proportional (%) and an absolute value.
2) Inconsistency in the division of indicators into impact and performance indicators. For example, increasing size of forest holdings is defined as an indicator of profitability of forestry, even though this is something that cannot be inferred directly from the indicator. The performance indicators proposed in the programme are predominantly input indicators.
3) The indicators describe factors which cannot be influenced with the NFP 2015. For instance, the proposed profitability indicator is the degree of mechanisation in forest management works, even though there are no measures in the programme through which this could be improved. The indicator as such is useful, because it allows for a better understanding of the reasons for changes, but it is not suitable as an indicator in the NFP 2015.
4) The assessment of changes in indicator values relies too much on subjective evaluation. Examples include "Use of best available data in decision making" and "The impacts of forestry on water and related risk factors are known/have been identified".
5) The choice of indicators is determined too much by the existence of monitoring data. More separate monitoring projects might be useful. For example, the effects of the activities of the Forestry Centres on the behaviour of forest owners might be researched using case studies.

On the positive side, the indicator system in the NFP 2015 is more forward-looking and more market-oriented than the set of criteria and indicators in the NFP 2010. The new indicators bring a stronger focus on other products than those of the forest industry, such as natural produce, tourism and recreational use, and the development of more diverse entrepreneurship in the sector. Recommendations for quantifying individual targets are presented in Table 1.1 in the Summary.

The greatest challenge for the monitoring system is perhaps the updating of the regional monitoring system (RFPs) to comply with the NFP 2015 targets. On the regional level, the indicators should perhaps focus more than at present on describing the efficiency and degree of customer-orientation of operations. The performance targets of the Forestry Centres should also be based on the Centres' own operations, not on the combined workload of all operators in the area. Regional indicators should also be developed to cover a broader scope than traditional wood production.

In updating the Regional Forest Programmes, attention should be focused in particular on the interdependency, harmonisation and monitoring of economic, social and ecological objectives to avoid conflicts, especially if roundwood production in certain areas will increase significantly from current volumes. This puts the willing-

Table 5.2 Assessment of the system for implementation, monitoring and evaluation, Section II

Questions	Responses/ Future Review for the Forest Sector	Responses / Draft programme
1. Is the system for the implementation, monitoring and evaluation of the programme functional? - Is implementation organised efficiently and are responsibilities allocated clearly? - Is the system for monitoring and evaluation clear and in line with the strategy? - Are the monitoring indicators valid with respect to objectives?	- Implementation of the programme is in the hands of several actors, who are all committed to the programme, but the allocation of measures is not sufficiently clear in all respects. - The Forestry Centres play a key role in the implementation of the programme, as do the Employment and Economic Development Centres, which all have their own performance targets, but the role of the T&E Centres could be strengthened. - The roles and functions of the private sector in particular need to be clarified (incl. competitive tendering). - Procedures for monitoring and evaluation are in place for roundwood production, but require further development in the case of monitoring the environment, biodiversity, equality and regional balance. - The validity of the indicators must be verified. - The division of tasks between different actors can be clarified and its efficiency improved, by increasing competitive tendering, for example.	- Implementation of the programme is in the hands of several actors; organisation and the allocation of responsibilities is not sufficiently clear. - Indicators have been specified for objectives and targets. Some of them are functioning properly, some are basically input indicators. This means that the indicators are not valid. - The role of the Forestry Centres has not been evaluated strategically, instead, it has been developed on the basis of their current functions – this would call for a more innovative attitude in development. - The roles of the State and other operators should be clarified and reorganised. - Reorganisation and network thinking should be implemented as part of the implementation of the strategy.
2. Are the systems for the implementation of the NFP 2015 and that of the RFPs mutually balanced? - What measures are taken to ensure that the implementation of Regional Forest Programmes is in line with the NFP 2015? - What is the effectivity and efficiency of the implementation systems?	- Regional Forest Programmes are well linked with the aims of the NFP 2015. - The systems of implementation call for more efficient practical application.	- The implementation system functions well at the Forestry Centres. - Many of the measures lie outside the Forestry Centres' powers of implementation. - One problem is how to gain commitment from the various actors, and in particular, how to steer the market-driven segment in the desired direction (e.g. product development, the vision of the NFP must be market-oriented).
3. Is the target level of the programme realistic with respect to the available resources: - Are the targets clear and measurable? - Have the targets been successfully prioritised in accordance with strategic choices and in line with them? - Do the targets serve the operating environment and are they market-driven? - Can they be achieved realistically given the measures and funding presented in the programme? - Have the alternative calculations prepared by the Forest Research Institute on commission by the Ministry of Agriculture and Forestry been utilised in the specification of the targets?	- Strategic objectives and the related indicators are created within the ongoing NFP process. - Operative goals are easy to measure, but not necessarily altogether relevant for monitoring the success of the strategy: for instance, harvest volume is not an indicator of the profitability of forest management; the targets will be reviewed during the NFP process. - The targets are for the most part supply-oriented. - The scenarios of the Forest Research Institute will be completed later.	- Some of the targets are clear and quantifiable – the problem is that they describe inputs rather than outputs. - Operative goals are not necessarily altogether relevant for monitoring the success of the strategy: for instance, harvest volumes do not necessarily promote the profitability of forest management. - The greatest defects are in the programme's market orientation (i.e. what services customers need); the targets are for the most part administrative, and indicate the result of the actors' work only indirectly. - Targets and the measures derived from them are scattered, which means that some of them will be achieved regardless of the strategy, some not. - The alternative calculations of the Forest Research Institute have been used, but somewhat one-sidedly, without deeper analysis of such aspects as the profitability of forest management.
4. Do suitable indicators exist for monitoring the programme? - Have suitable indicators been specified for the targets? - Can the indicators be used as a basis for the monitoring and evaluation of the programme?	- The monitoring reporting system of the programme works well. - The main emphasis lies too much on the description of the current status. - Systems for monitoring the operations and finances of the Forestry Centres do not yet produce information that would support management, expenditure monitoring and development of finances in a modern way. - The actual performance indicators for monitoring the programme are still in preparation.	- The programme does not indicate the comprehensiveness of reporting (indicators are still in preparation). - The main emphasis is on input indicators. - The indicators would need further work to develop them into input indicators that would describe the actual operations of the key implementers. - The main emphasis should be shifted from inputs to key strategic results: return on investment, average size of forest holdings and proportion of service provision of all business. Prioritising is also needed for indicators: which are the most important ones that need to be monitored most closely. - Monitoring reporting is now annual, and the national report includes a summary of the regional level. - In the future, resource allocation should be linked to actual performance and its relationship to planned targets. - See also section 5, where monitoring indicators are discussed at the national and Forestry Centre level.

ness of forest owners to sell in key position, a factor that will increasingly depend on their multi-criteria objectives.

The preliminary monitoring indicators presented in NFP 2015 are also discussed in Section 6.

Recommendations for the development of the implementation, monitoring and evaluation system of the forest programme are:

1) An analysis of the key actors, organisations and networks in forestry and forest management must be made and new procedures found so as to be able to respond to the requirements concerning the implementation of the programme (the recommended measure under objective 2.2.3. only covers actors in the public sector).
2) Efficient implementation of the programme calls for change management and additional resources on the national and regional level.
3) Each measure must have designated resources and actors; it must also be specified which measure the resources are reserved for, and which are still proposals. Resource allocation in the programme must be linked to its impact and performance.
4) Commitment of the private sector to the implementation of the NFP/RFPs must be improved through a participatory process.
5) Indicators for impact and performance must be refined, and indicators for cost-effectiveness and profitability must be added to the programme.
6) Statistics for all indicators relating to education, employment and entrepreneurship should be differentiated by gender. The indicators should not cover exclusively data which are being collected or available already.
7) Education concerning the impact of actions and the systematic evaluation of results (indicators) should be organised both on the national and the regional level.

5.3 Environmental impacts of the programme, Section III

Priority 2.3: Increasing energy and climate benefits from forests

The tightening goals for the production and use of renewable energy in the EU and for energy savings and improvement of energy efficiency put pressure on the NFP 2015.

In the draft programme, the use of wood-based energy is assumed to increase, with the use of forest chips tripling during the programme period by 2015. The aim of the programme is to steer development towards a controlled balance between the use of industrial wood and energy wood. Increasing the production and use of bioenergy to meet the requirements of the EU involves in fact one of the greatest uncertainties and challenges of the programme. The new national energy and climate strategy under preparation will look into the application of so-called feed-in tariffs to all renewable energy production to encourage its use. There is uncertainty on the market regarding how feed-in tariffs will in reality affect the price of wood. Should the price increase, will industrial wood be diverted to energy production and to other markets?

Finland is already one of the leaders in the EU in the use of bioenergy. Bioenergy already accounts for one quarter of our total energy consumption. The primary use of bioenergy is in combined heat and power production, where the fuel is wood-based by-products of the forest industry, such as forest chips, bark, sawdust and waste liquors. Finland is looking to raise the percentage of bioenergy, particularly the use of biofuels in transportation. Finland is committed to implementing the aim of the EU Directive (2003/30/EC) whereby 5.75% of all fuels used for transport purposes must be biofuels. The EU decision whereby the proportion of renewable energy sources in the EU will be increased to 20%, and greenhouse gas emissions be reduced by 20% by the year 2020 creates a particularly tight framework for the production and use of energy in Finland. The goal for the use of biofuels was raised to 10% in conjunction with this decision.

In the future, only bioenergy solutions whose total energy balance is clearly positive can be used to promote sustainable development from the environmental perspective and in an economically efficient way. Comparing the total energy balance of different sources of bioenergy, we can estimate how biomass can be used for energy production so as to achieve good operating efficiency. This aspect is particularly relevant for increasing the use of so-called second generation biofuels in transport. The most efficient way of producing bioenergy is to use wood-based biomass from forests, energy plants cultivated in fields, and biological waste, such as straw, directly in combined heat and power production. The production of harvesting residue, straw and small-diameter trees as well as reed canary grass requires a smaller energy input than fossil fuels. From the perspective of costs, too, the most efficient way of reducing greenhouse gas emissions is to use wood-based biomass in combined heat and power production, provided the energy thus produced replaces peat or coal.

The use of bioenergy should promote sustainable development locally, regionally and globally. Biomass is also used for many other purposes than energy production (newspapers, hygiene products and packaging). The demand for such products will increase as the standard of living in developing countries rises, but the production of biomass in fields competes with the production of food. Estimates have been made suggesting that the price of food will increase just as the price of wood will rise because of the increasing use of energy from forests. Therefore, alternative ways of using the raw material must be considered when evaluating alternatives in biofuel production, such as food, chemicals and industrial forest products. Since forestry and forest management are part of the global economy, such material and energy flows affect each other directly. The 10% goal of the EU for biofuels is thus implemented in Finland partly through the use of palm oil from Malaysia and etha-

nol from Brazil, because our technology for the refinement of biofuels is incapable of generating sufficient supply to meet the national need and demand in the short term.

In the recent report by the Finnish Environment Institute, *Bioenergy production in Finland – new challenges and their environmental aspects* (reports of the Finnish Environment Institute 11/2007), the following measures are recommended for evaluating the environmental and broader social impacts of biofuels.

1) The life-cycle chains of biofuels should be assessed from the sustainability perspective and national criteria for sustainability should be established (cf. the criteria used in the Netherlands).
2) Domestic raw material is insufficient in the short term to meet the demand for bioenergy; the same criteria must be used for evaluating the sustainability of raw materials both from abroad and from Finland.
3) When increasing the use of bioenergy, not only impacts concerning greenhouse gas emissions, but also other environmental and social impacts must be assessed.
4) Impacts of the use of bioenergy and the life-cycle chains involved in the production of biofuels must be evaluated using Finnish data and criteria.
5) Innovation factors in the use and production of bioenergy must be studied both nationally and on the regional level, because they can be different.
6) The impacts of the use and production of bioenergy must be assessed over a long time span.

It is clear that merely increasing the production and use of bioenergy nationally is not sufficient to meet the obligations set by the EU, nor the challenges of climate policy. The new energy and climate strategy will therefore set tighter goals for energy savings and energy efficiency, in line with the Energy Services Directive of the EU. The Energy Services Directive entered into force in May 2006, setting a national indicative energy savings target of 9% for Finland. This corresponds roughly to 18 terawatt-hours. Up until now, energy savings or energy efficiency contracts have been made in Finland where the parties have been the Ministry of Trade and Industry on the one hand, and municipalities or the industry on the other. Now Finland has set the same goal of 9% for energy savings and energy efficiency, as set down in the Energy Services Directive. The aim is that 80% of the energy consumption in industry and private services will be covered by contracts, as well as the entire energy production capacity of the country. In 2005, more than 7 terawatt-hours were saved with such energy savings contracts, corresponding to a reduction of about 1.9–2.7 million tonnes in carbon dioxide emissions. The goal of the new national energy savings and energy efficiency programme is massive. The programme is currently not included in any way in the National Forest Programme, its targets, measures or resource allocation.

Alternative scenarios of the Finnish Forest Research Institute for the preparation of NFP 2015: bioenergy production

One of the five scenarios prepared by the Forest Research Institute focused on the production of bioenergy and other new industrial forest products.

The use of bioenergy is already extensive in Finland compared to other EU countries, and the potential for increasing its use is consequently smaller than in other countries. Several recent studies have estimated the potential of increasing bioenergy production in Finland. Asplund et al. (2005) have evaluated from a technical and economic perspective the possibilities of achieving the goals for 2010 and vision for 2015 set in the renewable energy promotion programme of the Ministry of Trade and Industry (2002). According to their report, the goal of increasing the use of bioenergy could even be exceeded by 2030 for all fuels and sectors of use, on the condition that industrial forest production remains high. The following four sources of bioenergy were estimated to have the greatest potential:

increasing the use of forest chips (42 PJ [petajoule, 1015 joule])
increasing small-scale use of wood (21 PJ) (excluding forest chips)
increasing the use of recycled fuels and biogas (21 PJ), of which recycled fuels 14PJ and biogas 7 PJ, and
increasing the use of field biomass (15 PJ).

According to this estimate, the combined total potential is 99 PJ, or about 7% of total energy consumption in Finland in 2005. According to an estimate by the European Environment Agency (2005), the greatest potential in bioenergy in Finland is in waste, which also includes the waste liquors of the paper and pulp industry. Waste liquors are already used efficiently for energy production, and new potential for increasing their use can be created if the volume of pulp production in Finland increases. The potential for increasing the use of bioenergy lies therefore in the utilisation of the energy products of agriculture or forestry. According to the EEA estimate, the growth potential of bioenergy production in Finland is about 30% of total energy consumption in 2005, whereas it is currently 25%. The figure of 30% is not considered to involve significant environmental risks. The potential of increasing the use of forest bioenergy is therefore of the same order as in the estimate presented by Asplund, about 80–90 PJ.

According to a recent report by the Ministry of Trade and Industry (2007), the potential of increasing the use of bioenergy could be as much as 50%. This would require the use of various instruments, such as feed-in tariffs or higher prices, or both. Combined heat and power production will be the most important area for increasing the use of bioenergy within the next 10 years, that is, up to 2015. Heating and transport biofuels can be significant factors in increasing the use of bioenergy. Of the various fuels, forest chips have

clearly the greatest growth potential. Increasing the use of forest chips is considered the most important potential in the field of forest energy (Asplund 2005, Ministry of Trade and Industry 2007). Roundwood is hardly used at all for energy production in Finland, nor is there any need for it. Indirectly, however, even logs do matter, through the energy potential of waste liquors, bark and other industrial by-products.

The maximum production potential of forest chips encompasses all waste biomass left over in loggings. The figure also includes biomass from small-diameter trees produced in thinnings. The theoretical potential for the exploitation of forest chips is estimated to be 45 million cubic metres. About 15 million cubic metres of this can be used technically, and its energy content is about 108 PJ. The proportions are as follows:

thinning for energy wood (whole-tree chips) 14 PJ
first thinnings (whole-tree chips) 22 PJ
final fellings (harvesting residue) 58 PJ
stumps from final fellings 14 PJ.

The current production potential for forest chips is about 2.5 million cubic metres per year. The technically utilisable potential is therefore about six times as much, and the theoretical potential up to 18 times as much as the current potential. If all technically feasible potential were to be taken in use, it would correspond to about 8% of total energy consumption in Finland.

New bioenergy technologies, the global supply and demand of bioenergy, interests of the actors and the general trend in energy prices, all these affect the supply and demand of bioenergy also in Finland. It remains uncertain how Finnish pulp and paper industry will develop in the future. Should production decline or move to Russia, for example, or to Latin America or Asia, the volume of waste liquor will also decrease as well as other by-products of the wood processing industry that could be used for energy production.

In the Forest Research Institute's scenario number 4, it is assumed, and noted as well, that there are many uncertainties in the demand and production potential of bioenergy, and that the production goal of 12 million cubic metres is challenging. The development of new production technologies may be slow, and price and demand in the common market are affected by energy policy instruments, especially those used on the EU level. On the other hand, the forest industry sees the development potential of biorefinery technology as a global issue, one that can have considerable impacts for competition in forest industry as well as the domestic market. The first pilot plants will be started in 2008. It is important to follow developments in the raw material supply, and how increasing bioenergy production affects the price of industrial wood.

Priority 2.4: Safeguarding biodiversity and the environmental benefits of forests

Alternative scenarios of the Forest Research Institute for the preparation of NFP 2015: water load from forest management up to 2015

Common goals for the status of water are defined in the Water Framework Directive and the national Act concerning the arrangement of the management of waters. The aim is to ensure that the quality of surface and groundwater will not deteriorate and that their quality is at least good. Surface waters and groundwater will be protected, enhanced and restored so as to attain the goals for water protection by 2015 at the latest. The goal with respect to surface waters is to prevent the deterioration of their status and to attain at least good ecological and chemical status, except for artificial or heavily modified water bodies, where the aim is at least a good achievable status. Biodiversity in aquatic and shore ecosystems has decreased over the long term. Small water bodies in particular have been altered (brooks, rivulets, small lakes and springs) and there are few small water bodies that are still entirely in their natural state.

The Act allows for a step-by-step attainment of environmental goals under certain preconditions. The goals for each water management area are defined in regulatory cooperation and in water management plans drawn up in a collaborative planning process. The first water management plans will be completed by the end of 2009 as set down in the Water Framework Directive. The water management plans will enable the differentiation of regional targets, allowing the identification of sensitive water areas and the setting of special measures for them.

According to environmental load calculations prepared jointly by the Forest Research Institute and the Finnish Environment Institute, the overall nutrient load from forest management will not increase significantly from current levels in any of the scenarios. Loggings, forest regeneration and ditch reconditioning are the greatest sources of environmental load in all scenarios. The load can, however, have great impacts locally and regionally in areas with heavy wood production, and especially in headwaters and small water bodies. According to the calculations of the Forest Research Institute and the Environment Institute, considerable increase of harvesting on peatlands in scenario 3b will lead to considerably higher loads of both nitrogen and phosphorus, since ditch reconditioning and the area under fertilisation will increase significantly from current levels. Loggings on peatlands also involve a clear climate risk that would need to be assessed carefully. The overall economic efficiency of peatland logging remains undetermined, and involves too many uncertainties.

Because the estimates of the Forest Research Institute and the Environment Institute are based on normal years, they do not provide a sufficient basis for estimating the development of water pollution impacts as a result of extreme weather conditions caused by climate

change. Nutrient leaching, erosion and metal leaching into the soil will increase, as will the risk of floods, and these can reduce the impact of water protection measures and even of water protection structures (sedimentation basins, riparian zones, dams, surface runoff fields, etc.) as well as the impact of water protection locally and regionally for each body of water. The recurrence of extreme weather conditions will weaken considerably the ecological status of susceptible water areas in particular, such as headwaters and small water bodies. In the report by the Forest Research Institute and the Environment Institute on alternative calculations for the NFP 2015, no estimate is presented regarding the development of aquatic biodiversity in the scenarios, or the impacts of measures on the good ecological potential of waters, although this is the central content of the Water Framework Directive and the main goal in the new national water protection target programme as well.

Alternative calculations of the Forest Research Institute for the preparation of NFP 2015: evaluation of the impacts of climate change on forests

Estimates by the Forest Research Institute suggest that greenhouse gas balance will remain fairly stable in all scenarios during the programme period. The carbon balance in the "business as usual" scenario is slightly over 20 million tonnes of carbon dioxide equivalents and, if current trends continue, it will be 35 million tonnes in 2025. In the "greatest sustainable loggings" scenario (scenario 5), the carbon balance is slightly over 10 million tonnes of CO_2 equivalents, and in 2025 it would be 17 million tonnes, a significant increase from the current level.

An increase of 10–12 million cubic metres in the use of bioenergy will result in a small reduction in the carbon sink. The CO_2 effects of forest management and compensation as per the Kyoto Protocol – some 3 million tonnes of CO_2 equivalents – is achievable in all scenarios. There are great uncertainties in the calculations, however, such as the situation when peatland logging in particular increases considerably from the current level.

Climate change will in all probability have a positive impact on carbon balance because of accelerated growth. The annual increment of roundwood in southern Finland is in the order of 5–7% up to 2015 in the "greatest sustainable loggings" scenario (scenario 5). The increment in northern Finland is even higher, 16–18%. The total roundwood removals will thus grow significantly from the current volume. This will make room for both increasing the use of forest energy and for additional conservation (Kellomäki 2007).

Climate change brings along a variety of risks caused by extreme weather conditions: risks from droughts, storms and snow damage, forest fires as well as insect damage and diseases will all grow. These risks are mitigated in the scenarios through good forest management.

Assessment of the environmental impacts of the programme is presented in Table 5.3.

Recommendations relating to environmental impacts:

1) The sufficiency of funding for nature management should be taken into consideration in connection with the review of the METSO II programme as well as that of regional programmes.
2) Sufficient resources for multi-disciplinary research are needed to evaluate the risks of climate change and adaptation to them.
3) The programme must make better provision than at present to energy savings and improvement of energy efficiency.
4) National criteria concerning the environmental impacts of broad-based use of forest bioenergy are needed for decision making. The total energy balance of different bioenergy sources must be determined prior to extensive production.
5) Sufficient resources must be reserved in the programme for regional planning of water protection and for the implementation and monitoring of water management plans.
6) The overall efficiency of peatland logging should be reassessed because of the many risks/uncertainties involved.
7) Investment in multi-disciplinary research is needed for mitigating/anticipating detrimental environmental impacts.

Table 5.3 Assessment of the environmental impacts of the NFP 2015, Section III

Questions	Responses, prior to calculations and estimates of the Forest Research Institute	Draft programme (after the completion of Forest Research Institute calculations)
1. What would be the current status and probable future development of the environment if the programme were not implemented?	- Forest management generates environmental load on small water bodies, and the envisaged increase in harvest volumes will increase the load, especially in headwaters and small water bodies. - The programme will reduce the negative impacts of forest management on soil (corrective and preventive measures). - The effects of climate change will be most prominent without the programme (corrective and preventive measures).	- Nutrient load from forest management will continue in particularly susceptible water areas, such as small water bodies and headwaters. - Without the programme it would be impossible to respond to new provisions in environmental legislation, such as the Water Framework Directive or the Soil Framework Directive. - Without the programme it would be impossible to respond to the challenges of the new energy and climate policy. - Without the programme, the risk scenarios of climate change would be realised with greater force.
2. Are environmental problems relevant to the NFP taken into account in the programme document?	- The working group on "Ecological sustainability of forests" has prepared a background analysis on significant environmental challenges (water protection, soil protection, protection of genetic resources, biodiversity protection, landscape protection, climate change and adaptation to climate change, and the capacity of forests to function as carbon sinks) which must be taken into account during the programme period. - Major environmental challenges can already be read as targets in the programme document, yet the set of measures must be focused better and resources allocated and even increased for the reduction of water load, for voluntary conservation of biodiversity in commercially managed forests, and for the management of and adaptation to climate change.	- Changes in environmental status are taken into consideration in all other Forest Research Institute scenarios except "business as usual". - In spite of this, there are many uncertainties in the scenarios, such as the effects of climate risks on water load and the ecological status of waters; how increasing harvests will affect the carbon balance, especially on peatlands, but also on mineral soils. - The environmental and social impacts of increasing production and use of bioenergy are not yet known with sufficient accuracy, and national assessment criteria would also be needed in Finland to support decision making. - The set of measures for the conservation of biodiversity is in the process of being extended and efforts are being made to increase resources for conservation, such as through the Act on the Financing of Sustainable Forestry, which is a good thing.
3. Are international, national and EU-level treaties and regulations concerning environmental protection taken into consideration in the programme?	- The Soil Framework Directive under preparation in the EU requires that targets are incorporated in the programme. - EU targets for bioenergy production require measures and resources for soil protection and for reducing environmental load on waters. - The Water Framework Directive requires that forest management plans include more precise advance planning for river basins. - Under the Water Framework Directive, separate actions plans for water protection in forest management can be drawn up for water management areas. - More stringent protection of small water bodies is set down in the revised Water Act. - Prioritised sector-specific targets for increasing energy savings, energy efficiency and the use of renewable energy are needed. - Climate change management and adaptation calls for revised targets and correct allocation of resources; more research is needed on the targeting of measures and their effects.	- Targets and measures for soil protection are now incorporated in the preparation of the programme. - The programme does not yet contain specified targets and measures for this; a comprehensive impact assessment is needed for this, together with a set of national criteria as a basis for decision making. - Provision is now made in the programme for the preparation of water protection plans that take into consideration also the conservation of biodiversity and the maintenance of the ecological status of waters under the Water Framework Directive. - The programme now makes special provision for small water bodies, for example; they will also be included in the METSO II programme. - No targets are as yet included in the programme for energy savings or the improvement of energy efficiency as required in the recommendations of the Energy Service Directive and of the national energy savings programme. - Targets and measures for adaptation to climate change are now included in the programme, as are proposals for multi-disciplinary research programmes to specify the risk profile of climate change and provide for the anticipation and implementation of adaptation.
4. What are the positive and negative environmental impacts of the programme on such issues as biological diversity, soil, water, air, climate factors, social fabric, landscape, cultural heritage, utilisation of natural resources, population, public health, living conditions and quality of life as well as the interconnections between these factors?	- This question can only be answered when the scenario assessment of the Forest Research Institute is completed in August 2007.	- Environmental impact assessments are used to take a position on and assess the significant environmental impacts of projects or programmes and plans. - The main environmental impacts of the programme involve biodiversity, waters, soil, landscape and climate. - According to the Forest Research Institute scenarios, detrimental environmental impacts can be managed, provided that sufficient resources are allocated for planning and consultation in order to implement best management practices. - The greatest environmental and social risks result from and are associated with the increasing production and use of forest bioenergy as well as loggings and fertilisation on peatlands. - There are many uncertainties in the overall economic efficiency of peatland logging, especially involving carbon balance and water load. - The overall energy balance of forest bioenergy must also be assessed and compared with other sources of bioenergy. - Finland must have in place a set of national criteria of bioenergy production. - The impacts of the programme on social fabric, landscape, cultural heritage, etc. are discussed to some extent in the section on balanced regional development.
5. Does the programme contain sufficient measures to prevent, mitigate or correct any detrimental environmental impacts resulting from the implementation of the programme?	- Considerable increases in the supply of wood, 10–15 mill. m3/year from the current level, and satisfaction of the need for bioenergy (8–10 m³/year), while wood imports from Russia decline, will increase environmental risks considerably: water load, erosion, deteriorating diversity. - Management of and adaptation to climate change call for new targets; more research is needed on the targeting of measures and their effects (case in point is the management of forests on peatland).	- Provision is made in the programme for water protection by water management area as set down in the Water Framework Directive. - Not enough attention is paid yet in the programme on the environmental impacts of the production and use of forest bioenergy on water protection or soil protection, for example; a separate specific study of this is needed, one that can be conducted as part of the preparation of the new energy and climate strategy, for example. - Provision is made in the programme on two research programmes on the risk profiles of climate change and adaptation; research on the carbon balance in peatland forests and peatlands, etc. can be included in this.

5.4 Impacts of the programme on forest biodiversity, Section IV

Priority 2.4: Safeguarding the natural and environmental benefits of forests

It is stated in the programme that for reasons of international and national commitments and social acceptability, there is need for more extensive conservation of forest biodiversity in Finland than at present. This applies to southern Finland in particular, which is lagging behind with respect to the goals of biodiversity conservation. Forests remain the primary habitat for more than a third of the endangered species in Finland.

Finland is currently preparing a monitoring report for the period 2001-2006 as required by Article 17 of the EU Habitats Directive. The report will be completed during autumn 2007, and the aim of the Commission is to prepare during 2008 a summary of the situation in the EU on the basis of national reports. The report will contain estimates of the level of conservation of the habitats and species considered valuable by the Community. Preliminary conclusions regarding the habitats and species covered in the Finnish national report were presented by the Ministry of the Environment at an expert seminar held in June 2007. According to these preliminary results, the conservation status in most forest biotopes is classified as "unfavourable-inadequate", and in the case of esker and flood forests as "unfavourable-bad" or "unfavourable-bad-decreasing". In the light of preliminary monitoring data, the situation with respect to peatlands is even more unfavourable, with a considerable part of the biotopes classified as "unfavourable-bad" or "unfavourable-bad-decreasing".

Considerable effort is therefore required in Finland to slow down the trend of endangerment.

Alternative calculations of the Finnish Forest Research Institute for the preparation of NFP 2015: Impacts of conservation of forests in southern Finland

Conservation goals included in the Forest Research Institute's scenarios 3 and 5 are 5% higher. The alternative calculations are based on the premise that a total of 390,000 hectares of forest will be conserved at the beginning of 2009, which corresponds to 39,000 ha in the territory of each Forestry Centre. The primary target for conservation would be the oldest forests, that is, heathland forests (age over 120 years) and peatland forests (over 80 years). According to the calculations, such one-time conservation at the beginning of 2009 would cost the State about 2.4-3.3 billion euros in lump sum compensations, delivery costs not included. Studies show that Finns want the conservation area to be about 4.2%, or almost the same size as the area in the alternative calculations of the Forest Research Institute. There are no realistic possibilities for such a lump-sum compensation, however, and at present levels of compensation, it would take about 40-55 years to acquire the conservation areas. This is not justifiable for forest/land owners, nor is it socially sustainable. New measures based largely on voluntary participation and temporary conservation must be sought that will increase the social acceptability of conservation, are justifiable in terms of the national economy, and can be implemented during the programme period.

Without taking a stand on the conservation percentage, which can and indeed should vary regionally, this would in practice entail the development of a large spectrum of measures and their application together with full conservation and complementing the existing network of conservation areas. As suggested in the recommendations of the METSO I programme, the new METSO II programme is being used to find sufficiently representative sites significant for biodiversity in certain important habitats to be placed under voluntary conservation. The idea is to construct a network of habitats that will support the current protection network. The preservation and formation of sites in these habitats that are rapidly developing in a favourable direction or that are suitable for restoration will be promoted in the future. The idea is to mark off sites meeting biological conservation criteria in an ecologically practical way and in sufficiently large wholes. Another aim is to improve the functionality of current conservation areas by targeting voluntary conservation to neighbouring areas: sites that improve the condition of conservation areas can be found by emphasising the criteria of location and size.

One important goal is also to construct forest networks near known core areas in order to create a network of habitats that are in near-natural state or developing in that direction. These areas would guarantee in the long term, and with gradual climate change, the survival of even demanding forest species in the forest vegetation zone in southern Finland. Such areas can be formed by making use of river basins, and in addition to forest they can also include rocky areas, peatland, small water bodies and shore vegetation. There can also be forests within these areas that are under normal management. Such areas will support the survival of ecosystem services in the long term (achieving the aims of multiple use of forests, water protection, development of tourism, and adaptation to climate change). Experiences of multiple-effect conservation in Central Europe will be utilised, where aims are achieved simultaneously and the social acceptability of conservation is enhanced.

In addition to the above, voluntary conservation will be used to establish forest areas of more than 10 hectares in size that can be left untended on other grounds (landscape factors, tourism, other local economic factors) so as to allow them to develop into natural-state forests. Such landscape forest areas can consist of continuous forest areas or groups of interlinked forest compartments, and they serve the purpose of increasing the degree of connectivity between areas (examples: forests along river banks, depressions, wooded ridges).

The biological criteria for conservation are complemented in the METSO II programme, which also takes into account better than before the social acceptability of conservation and the attainment of the objectives of other ecosystem services and social sustaina-

bility. Provision is made in the implementation of METSO II for setting different targets for different habitats; this promotes the implementation of the programme and its cost-effectiveness. This calls for the allocation of sufficient resources to joint planning and consultation whereby experts in forest issues, water protection and biodiversity will engage in joint planning and consultation on the regional and local levels more than at present.

Biodiversity in commercially managed forests can be enhanced with the following measures:

1) targeting voluntary conservation measures in an ecologically effective way in commercially managed forests, such as leaving more retention trees; or the formation of clusters of deadwood; improving nature management in herb-rich deciduous forests, sunny esker slopes, small water bodies, shoreline and peatland forests; promoting the preservation and favourable development of structural features and habitats under the Forest Act and recommendations concerning protected sites; and
2) developing nature management and regional planning in commercially managed forests.

See Table 5.4.

Table 5.4 Assessment of the impacts of the programme on forest biodiversity, Section IV

Questions	Preliminary estimates based on the Future Review for the Forest Sector	Draft programme (after the completion of Forest Research Institute calculations)
1. Are the targets of the programme consistent with the action plan 2015 for forest biodiversity?	- In accordance with international and national biodiversity programmes, targets for sustainable use are being replaced by the safeguarding of ecosystem services (EU and international treaties); this also supports adaptation to climate change and its anticipation in forest management. - Safeguarding ecosystem services also calls for a review of the system of economic incentives; the preliminary and positive experiences gained in the METSO programme should be continued and extended here. - It is important to create a system within the implementation and monitoring of the NFP that makes use of latest research results also in practical forest management.	- Recommendations of the METSO I programme are used in nature management and conservation in commercially managed forests. The recommendations are being reviewed as part of the preparation of the METSO II programme by, among other things, refining the biological criteria for conservation and differentiating the aims of conservation and management on the regional level. - Provision is made in the implementation of the METSO II programme for the conservation and management of extensive continuous forest areas; this would support the existing conservation network. - The ecosystem services approach is being applied in the implementation of the METSO II programme through the conservation and management of such continuous forest areas, for example. - Latest research data is used in the preparation of the METSO II programme.
2. Does NFP 2015 comply with the biodiversity principles of Resolution V4 of the Vienna Ministerial Conference?	- The resolution calls for participatory implementation of biodiversity conservation that follows the ecosystem approach; it also requires collaboration in implementation, partnership and good governance. - The resolution also emphasises a holistic and multi-disciplinary approach and linkage to national strategies of sustainable development: the preparation of the NFP should therefore consider the multiple uses and services of forests in a more egalitarian manner, to better safeguard the functioning and diversity of forest ecosystems. - The resolution also requires that regional forest planning be promoted, which is currently not the case.	- The principles of the resolution are now incorporated into the preparation of the METSO II programme on a broad basis, and also in the programme targets with respect to nature management and conservation in commercially managed forests. - Broader social aims are recognised in the national targets of both programmes. - It remains unclear, however, how these targets can be incorporated properly in the Regional Forest Programmes when they come under review in the beginning of 2008. - Would it be advisable to create pilot projects for establishing extensive continuous forest areas in some RFP territories to be able to monitor in practice what sorts of impacts the new diverse approach has for the various stakeholder groups?
3. Does the programme meet other biodiversity targets and regulations on the EU level and internationally?	- The use of economic incentives must be increased in the conservation of biological diversity. - The ecosystem approach and the safeguarding of ecosystem services are laid down in the UN Convention on Biological Diversity. - Good practices have been developed in Finland for the application of the ecosystem approach. These can be utilised more broadly and on a voluntary basis. - Best practices for the conservation of biological diversity need to be supported by functional, clear and flexible funding instruments, such as providing more extensive funding through the Act on the Financing of Sustainable Forestry.	- The usability and applicability of economic incentives are reviewed in the preparation of the METSO Ii programme, with a view to enhancing the flexibility of the system. - The Act on the Financing of Sustainable Forestry will be reviewed immediately with respect to nature management and conservation in commercially managed forests. - The new METSO II programme and thereby also the NFP will incorporate a broad range of measures of voluntary conservation and methods for nature and environmental management.
4. How have experiences from the implementation and assessment of the METSO programme and its recommendations been taken into account in the programme?	- Experiences from the METSO programme are used in the preparation of the new national biodiversity programme. - Sufficient support for nature management in commercially managed forests must be ensured; provision must be made for reviewing the Act on the Financing of Sustainable Forestry.	- The results, partly yet to be published, of the monitoring and evaluation of the METSO I programme and also of other biodiversity research are fully taken into consideration in the preparation of the METSO II programme. - Provision for reviewing the Act on the Financing of Sustainable Forestry is made starting right in the beginning of 2008, when both programmes will be completed and particularly when concrete proposals for the implementation of the METSO II programme will be at hand.
5. How are latest research results, such as those of the Forest Biodiversity and Monitoring Programme (MOSSE), used in the programme?	- Latest research results are used widely in the preparation of the new national biodiversity programme.	- Latest research results are used directly in the preparation of the METSO II programme, and unpublished research data are also used in the preparation of the NFP.

Further recommendations regarding the conservation of biological diversity:

1) Provision should be made to implement a broad range of voluntary conservation measures, and the Act on the Financing of Sustainable Forestry should be revised to include the conservation of sites listed for protection, also new ones.
2) Sufficient resources should be reserved for a new type of diverse consultation which can be used to support actively the conservation of biodiversity and the attainment of increasingly stringent targets for water protection.
3) Sufficient resources should be reserved to educate forest management professionals to respond to the new requirements of nature management and water protection.
4) Regional multi-criteria planning should be promoted in Natura areas, for example, integrating the objectives of water protection, biological diversity and forest management.
5) As for the climate changes, Finland will play a special role in the protection of northern habitats and species; this calls for the conservation of sufficiently large continuous forest areas.
6) Managing endangerment in changing conditions requires resources for multi-disciplinary research on biodiversity.
7) Sufficient resources are needed for joint planning and consultation on the regional and local level (i.e. forest sector, water protection, biodiversity conservation).

5.5 Impacts of the programme on balanced regional development and gender equality, Section V

5.5.1 Impacts on balanced regional development

Even though the forest sector is no longer used as an instrument of regional policy in the same way as before, it has considerable direct as well as indirect effects on regional development even today. The identification of regional impacts is in fact well accounted for in the draft programme. The relationship of the programme to other regional planning is given a deserved emphasis. The programme covers virtually all those elements that contribute to the regional impacts of the forest sector. However, the programme does not interfere with their functioning so as to purposefully seek to influence regional development. This is a point where the programme would need to be developed further. Although regional development is influenced mainly on the level of the Regional Forest Programmes, the NFP should also include at least a brief description of the influencing mechanism. A general map of the regional impacts of the programme would also enhance understanding. Admittedly, such a document can be prepared with sufficient precision only after the review of the RFPs.

In some regions, the RFPs are already gaining an established position in the work for regional planning and programmes. The schedules for the preparation of various programmes, land use and action plans are different, as are their judicial and other impacts. The relationship of the Regional Forest Programmes to this cluster of plans should therefore be clarified, as is deservedly pointed out in the draft programme, and the harmonisation of the plans with the RFPs should be developed further.

Evaluation of the regional impacts of the NFP is based on developmental indicators. In order to be able to evaluate the degree of balance between regional impacts, the set of indicators should be the same throughout the country. The set of indicators was not yet included in the draft programme. The structure of the RFPs should be developed into a more easily comparable direction than they are at present. The utility of forest and environmental reports for the evaluation of regional development can also be improved.

One problematic phenomenon for regional development that is difficult to assess is the transfer of forest income away from the geographic location of the holdings. The effects of this phenomenon are particularly marked in eastern and northern Finland, where the proportion of forest owned by the State in particular is relatively high. Assessment of the impacts of the programme on balanced regional development is presented in Table 5.5.

Table 5.5 Assessment of the impacts of the programme on balanced regional development, Section V

Questions	Responses/ Future Review for the Forest Sector	Responses / Draft programme
1. Does the programme promote balanced regional development?	As a whole, the programme is very deficient with regard to the promotion of balanced regional development.	The programme as a whole represents a moderately good response to this issue, but the sections of the programme that are still incomplete (in particular the Annexes pertaining to this theme, 1, 4 and 5) will demonstrate the position of the programme towards balanced regional development.
1.1. What is the nature of the programme process from the perspective of balanced regional development?	The programme document does not list the organisations that participated in the preparation of the Future Review for the Forest Sector, although they are presented in other sources. For better transparency, the NFP document should list the organisations that participated in the preparation of the programme, because not all stakeholders have the opportunity to find such information from other sources.	With respect to the programme process, the need for national steering and harmonisation and for extending the work with stakeholders inscribed in the programme does include the idea of promoting balanced regional development. Because the action plan for the programme (Annex 1), Integration of national strategies and programmes (Annex 4) and the list of participating persons and bodies (Annex 5) are still incomplete, it is premature to assess the impacts of these measures on balanced regional development.
1.2. Do the objectives of the programme promote balanced regional development?	In the description of the operating environment in the Future Review for the Forest Sector, it is mentioned that the importance of the forest sector for the vitality of rural areas as a whole is an important resource for regional development and the promotion of balanced regional development. Moreover, the impacts of the growing industry of nature tourism for regional economy are emphasised. These descriptions are rather abstract, and what in particular is lacking is an account of how and which relevant parts of the Regional Forest Programmes were taken into consideration in the preparation of the Future Review. The vision and aims of the Future Review are also characterised by a general abstract and unprioritised nature.	The promotion of balanced regional development is covered under one objective in the programme (2.5.1). The indicators for this objective are still under preparation. Elements in the objective that promote good and balanced regional development include the express aim of taking regional strengths/special features into account and the aim of harmonising different regional levels, the multiple uses of forests and administrative sectors. A strategic presentation of the regional structure of national use of forests is lacking, even though it is included in the aforementioned aim for harmonisation. It would be important to include in the NFP a target-oriented regional structure for forest use from a national management perspective. This would be best implemented with a general map.
1.3. Do the measures in the programme promote balanced regional development?	Regional development and balance are clearly foregrounded in one of the eight clusters of measures ("Forests will enhance regional development, employment and entrepreneurship"), but measures can be found in many other areas that are significant for regional development and for balanced regional development in the entire country.	The programme target 2.5.1 contains a summary of nine measures that support balanced regional development. When implemented, they will all promote balanced regional development. The concrete contribution of the measures to balanced regional development will probably become clear when the action plan (Annex 1) is completed.

Further recommendations for the promotion of balanced regional development:

1) The target-oriented mechanism for regional development and regional balance in national and regional programmes should be clarified.
2) A target-oriented regional structure for the use of forests should be included in the NFP. The structure should be presented from a national management perspective, and would be best implemented with a general map (see for example the map on future regional development of Finland produced by the Ministry of the Environment). The map would set out the special features of the use of forests and the areas of national importance vis-à-vis forest management from the perspective of regional (structural) balance.
3) For the upcoming review of Regional Forest Programmes, the NFP should also identify geographic areas and sites of particular national importance for harmonisation in the RFPs and other strategic regional programmes. For example, harmonisation between the RFPs and other regional programmes is particularly important on the national level for such things as planning the use of forest chips for energy

production. One example of a geographic area is North Karelia, where the need for such harmonisation was shown to be especially useful in the evaluation.

4) Organisations responsible for the preparation of the programmes should be presented directly in the programme document, in an annex, for example. This is partly the case already.
5) The views of stakeholders and experts representing different genders and generations should be utilised more broadly when reviewing Regional Forest Programmes. Now they were used only occasionally in the impact assessment during the preparation of the programmes.
6) The National Forest Programme 2015 must include mention of monitoring and evaluation indicators for balanced regional development, suitably differentiated by gender. The NFP must provide as coherent a set of monitoring and evaluation indicators as possible for the RFPs to improve the commensurateness of the national monitoring and evaluation of the RFPs.
7) Potential commensurate indicators might be regional changes in the number of jobs in forestry and in taxable forest income. For the purposes of monitoring regional balance, the latter indicators should be suitable for monitoring the "leaking" of forest income (of companies, organisations and the State) from one region to other regions, or vice versa. The possibility of refunding such "leaks" of forest income should be studied in eastern and northern Finland in particular.
8) Other commensurate indicators could be certain regional impacts that are not reflected in employment figures, mainly those that affect wellbeing (such as recreational use of forests, hunting, nature tourism, maintenance of natural features and habitats, and perhaps also the collecting of natural produce for household use). With respect to employment, the impacts of the programme on jobs can be evaluated for both the entire forest sector and for sectors of the economy that are wholly or partly dependent on the forest sector (at least nature, cultural and experience tourism and the commercial collecting of natural produce). Jobs in harvesting, transportation included, are not entirely intraregional, and especially in the case of haulage they can be regionally differentiated according to the forests where the fellings are made.
9) With respect to Regional Forest Programmes, monitoring and assessment of regional development and regional balance should be increased in both forest management and environmental reporting.

5.5.2 Impacts on gender and generational equality

Gender equality has become a significant theme in international development programmes, both in the UN and the World Bank, as well as in international forest policy and related recommendations. Women are increasingly seen as a resource and also a source of innovation. Unfortunately this is not the case with the Finnish National Forest Programme 2015, which is quite gender blind.

The forest sector is very much male-dominated. Key statistics in the NFP have not been differentiated with respect to gender, unlike other regional policy programmes. Although women have been mentioned as forest owners in the chapter of forest ownership, their considerable importance in forest ownership, in practice about 40%, is not taken into account. In the section on safeguarding the availability of competent labour, the fact that approximately 18% of people working in the forest sector are women has not been taken into consideration. By contrast, only about 10% of the 7,000 entrepreneurs in the sector are women, about 1% of forest workers, and 5% of forest machinery operators. Women's greater participation might help to alleviate the labour shortage, and also the supply of wood on the market more generally.

In summary, we may say that the programme has not been gender mainstreamed to achieve gender equity, nor does it specify any special measures that would support forest-related skills among women. On the other hand, in some areas, children and young people have been taken into consideration admirably. No implementation measures are presented in the programme for the management and coordination of networks of different actors, nor is it specified how interactive participatory processes could be supported using professional mediators. Assessment of the impacts of the programme on equality is presented in Table 5.6.

Further recommendations relating to the promotion of equality:

1) Key statistics in the forest sector should be differentiated by gender. Such statistics include economic status (income and forest owners), education on different levels, employment and opportunities for participation on the boards of organisations and companies and in representative bodies.
2) The programme should clearly express developmental challenges both generally and for target groups differentiated by gender.
3) The aims and expected results of the programme should be prioritised and presented relative to the challenges of the target groups and the operating environment.
4) The detailed nature of the system of implementation calls for measures that involve the management and coordination of actor networks. In order to prevent conflicts, interactive participatory processes should be supported using professional mediators.
5) Gender equality should be mainstreamed into the NFP 2015 and special measures should be undertaken to increase the attractiveness of the forest sector among women and young people.
6) Special support to attract women to the forest sector, such as tailored education and training and the development of advisory services for women forest owners.

Practical measures for the promotion of equality by mainstreaming and through the use of special measures are presented in Table 1.2 in the Executive Summary.

Table 5.6 Assessment of the impacts of the programme on equality, Section V

Questions	Responses/ Future Review for the Forest Sector	Responses / Draft programme
1. Does the programme promote equality (between the sexes and different age groups)?	- The sexes are not mentioned in the Future Review at all. It therefore preserves the male-dominated situation in the forest sector, and does not promote equality, at least not for women.	- The programme remains fairly gender blind. The male-dominated nature of the sector is not acknowledged in it. It therefore does not promote the position of women as a resource. By contrast, it does encourage children and young people to be included in the development of the forest sector.
2. What are the roles of women and men of different ages and how are they represented in the various stages in the preparation of the programme?	- Women have clearly been a minority in the preparation of the programme, for they have a representation of 10–30% in the working groups. Young people were not represented at all, except through the Guides and Scouts of Finland and the Finnish Association for Nature Conservation.	- This cannot be evaluated at this time, because the relevant annex is still in preparation.
3. How well has gender and generational equality been mainstreamed in the programme?	- Judged by the account of background material, we may say that the various stages of the preparation process are blind with respect to both gender and generation, which obstructs the utilisation of the resources of women as well as young people. Young people are not mentioned at all, and aged people only as forest owners. In the Regional Forest Programmes, however, young people are mentioned in some programmes as targets of special measures.	- Young people are mainstreamed into the programme better than women. See above.
4. To what extent are the interests of women and men of different ages reflected in the targets (expected results and impacts), strategy and measures of the programme as well as the system for its implementation?	- It is hard to say, because the targets, strategies and the system for implementation have not been differentiated according to the interests of women and men of different ages.	- Judged by the questionnaire surveys and interviews conducted for the ex ante evaluation, we may say that the majority of women regard the strategies presented in the programme as rather good. - It was considered important that the various aims should be balanced, because men and women, and also women amongst themselves, represent different interests and have therefore different aims. - The general view was that the system of implementation should be revised in a more participatory direction. - The wish was expressed that the actors should be committed to the jointly negotiated vision better than at present.
5. What positive and negative changes is the programme expected to bring about in the direct and indirect opportunities of women and men, and in the social, economic and environmental conditions relevant to their position?	- The Future Review does not provide material for answering this question.	- No direct measures for promoting gender equality can be read in the programme, and it therefore does not enhance the opportunities of women at least to be integrated fully into the forest sector. - A few measures seek to promote awareness among young people of the importance of forests, both in the national and regional forest programmes.
6. How could more women be attracted to the forest sector and how could men be made to see women's participation as a resource?	- This matter is not addressed in the Future Review.	- This matter is not addressed in the NFP 2015 either. - More women could be attracted to the sector by gender mainstreaming the NFP 2015 and its implementation in cooperation with women's and men's networks.

6. Monitoring criteria and indicators

6.1 The level of NFP 2010: criteria and indicators for sustainable forest management

A set of criteria and indicators for sustainable forest management, based on the Pan-European indicators for sustainable forest management, was drawn up for following the implementation of the National Forest Programme 2010. The national criteria for sustainable forest management correspond well to the Pan-European criteria, and only a few national indicators were added to them, such as (6.1) timberline forests and (6.8) exports of the forest sector, to describe special features in Finland.

Implementation of the aims of the NFP 2010 was monitored in separate *Follow-up Reports*. The latest Follow-up Report was published on data covering the period 2005–2006. The Follow-up Reports for the NFP 2010 present the development of nearly all national criteria. Data for the national criteria missing from the report can be found quite extensively in the forest and environmental reports of the Regional Forestry Centres and in the data of the National Forest Inventory prepared by the Finnish Forest Research Institute. The monitoring of national criteria is on the whole fairly comprehensive and well reported.

Compatibility between the national criteria and follow-up of the NFP could be improved by enhancing the structural consistency of reporting. The readability of the follow-up reports would be improved considerably if the matters discussed were in the same order and under the same headings as in the report on national criteria; this would clarify the real ability to follow each criterion. These matters would merit consideration also in the planning of the follow-up reporting of the NFP 2015.

6.2 NFP 2015 level: new national indicators (draft)

The follow-up indicators for the NFP 2015 will soon be completed, and will be used to follow the implementation of the programme

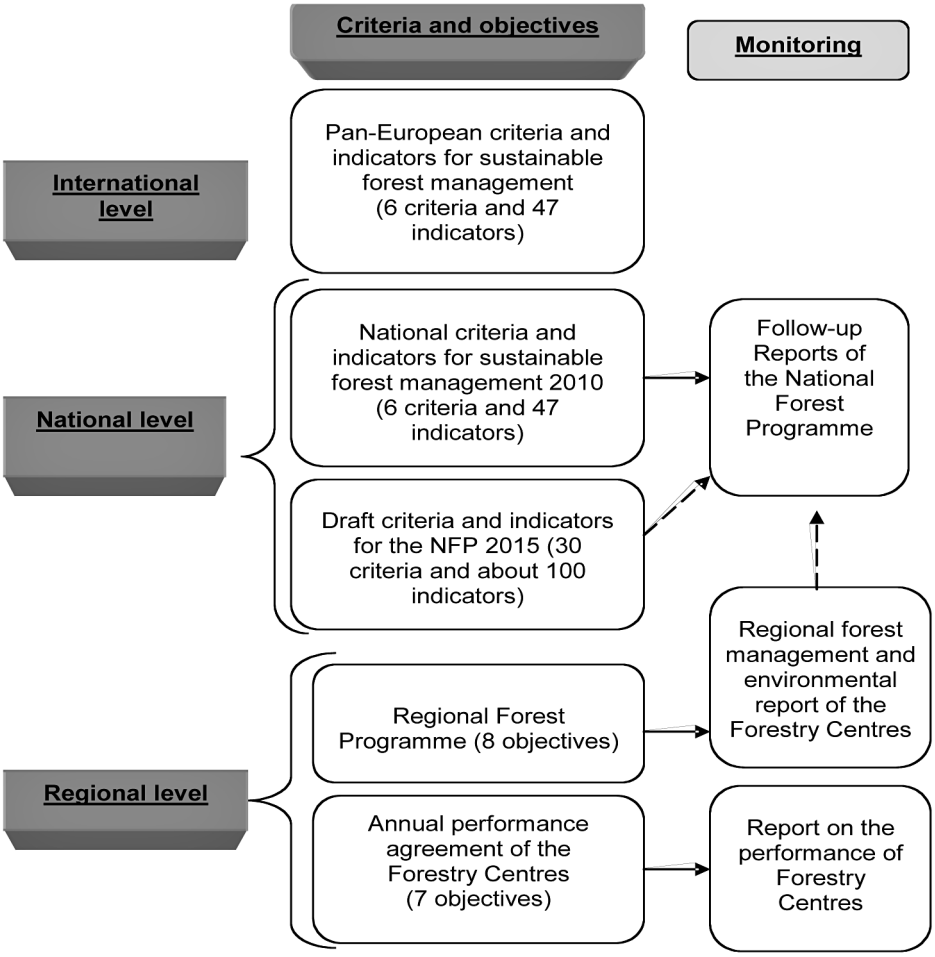

Figure 6.1 Criteria for forest management on different levels and their monitoring

on the national level. The implementation is followed by annual follow-up reports. The reports are envisaged to include a summary of the implementation of Regional Forest Programmes as well.

The follow-up indicators for the NFP 2015 differ from the previous national criteria in that they embody a stronger market-oriented perspective and a more robust future orientation. This comes across in the inclusion of foresight work (criterion 2.6.5) in the programme, and also in the emphasis placed on the practical application of research results, among other features. Education and research and development activities are also expected to support the creation of new business and entrepreneurship (2.6.1). Another fact that attests to new kind of thinking is the introduction of the number of patents and innovations as an indicator (criterion 2.8.1) which measures development work that has a practical application.

Because the indicators of the NFP 2015 have been modernised (draft dated 10 September 1007), the national as well as regional indicators (RFP monitoring) must correspond to the new national requirements better than before. A stronger role for market-orientation and an emphasis on entrepreneurship and development work in the sector should replace current thinking that focuses largely on the supply of roundwood. The challenge of the indicator system is its application on the regional level and the gathering of current measurable data there. The fact that the new preliminary set of indicators focuses more than previously on issues other than industrial forest products, such as natural produce, tourism and recreational use and the development of diverse forms of entrepreneurship, calls for closer follow-up on the regional level also in these matters, in addition to the follow-up of traditional forest management.

The indicators presented in the draft NFP 2015 are still preliminary and are not prioritised: what are the few core indicators that can be used to show how the target level for 2015 is being achieved? There are only question marks on the indicator level, or the indicators are very incomplete. For instance, the target (2.5.7) of maintaining and developing forest-based culture has a list of aims, but only one indicator: "Sites of cultural history on State lands have been inventoried". This does not really tell us anything about the development or maintenance of culture. The construction of the set of indicators is still incomplete in many other respects, for the indicators are not adequate to describe the issues embodied in the criteria.

The indicators on education (2.6.3), employment (2.5.2, 2.5.4) and entrepreneurship (2.5.2, 2.6.1) in particular should incorporate gender equality, and the statistics should be differentiated by gender. These references are lacking in the draft document.

A few indicators would need a more precise description about what the indicator is supposed to measure. For example, the indicator for increasing the use of wood for energy production (criterion 2.3.1) is attainment of the national target of a 5.7% share for biofuels of all fuel needs in transportation by 2010. Yet the indicator does not take into consideration in any way the percentage of imported biofuel in future fuel production.

6.3 Level of measures in the Regional Forestry Centres

The key regional actors in the implementation of the NFP 2015 are the 13 Regional Forestry Centres that are charged with the sustainable management of forests and the conservation of their biodiversity as well as the promotion of other forest management in their territory (Act on Forestry Centres, and the Act on the Forestry Development Centre Tapio). The tasks of the Forestry Centres are divided into administrative, promotional and operational tasks, which are as follows:

Administrative tasks:

- Enforcement of legislation and inspection
- Tasks involving the financing of forest improvement works

Promotional tasks:

- Advisory services for forest owners
- Communications
- PR for forestry
- Education
- Regional planning (gathering data on forest resources)
- Promoting the use of forest resources, incl. forest certification
- Regional Forest Programmes (preparation and implementation)

Operational tasks:

- Education and consultation for a fee
- Ditch reconditioning
- Construction and maintenance of forest roads
- Preparation of management plans for individual forest holdings
- Planning and implementation of seedling stand management and other similar works
- Other operations subject to charge (incl. evaluations of forest holdings, planning)
- Various projects (incl. projects funded by the EU)

The sphere of operations of the Forestry Centres is broad and there are several other operators in the same field, such as the Employment and Economic Development Centres, Forest Management Associations and forest companies. The tasks of the Forestry Centres also contain overlapping functions, such as those under promotional and operational tasks. Consequently the Forestry Centres receive funding from the Government for tasks that support the business operations of the Centres (Forestry Centre Evaluation 2004).

Forest management and environmental reports

One of the most important instruments for monitoring the operations of the Regional Forestry Centres are the annual forest man-

agement and environmental reports. The operations of the Forestry Centres are based on the Regional Forest Programmes. The forest management and environmental reports are closely linked to the RFPs, and reporting should focus on the achievement of the aims presented in the programme. Although the forest management and environmental reports are published separately for each region, they follow national instructions closely and are therefore very similar.

The reports describe not only the achievement of the targets laid down in the Forest Programmes, but also the territory of each Forestry Centre in general, and they contain a wealth of data on the situation in the area as regards forest management and conservation of forest ecosystems.

One problem is that the identity of the real operators in the area remains unclear. The targets laid down in the Forest Programmes are defined for the regional level, and the figures for harvesting and forest management measures do not differentiate the number of measures implemented by the Forestry Centres themselves, only total figures for the area in question are provided. There is variation between the individual Forestry Centres regarding how the activities of the other operators in the area (Forest Management Associations, Employment and Economic Development Centres, Environment Centres, etc.) are reported. A general description of the territory without differentiating between the aims and performance of the Forestry Centres themselves does not as such reveal anything about the efficiency of the operations of the Centres.

The current target levels are not realistic. The "sample" of the three Forestry Centres shows them clearly struggling to achieve the targets of the 2006 RFPs in the case of nearly every indicator monitored in performance guidance. (Table 6.1).

Moreover, the performance indicators do not describe the efficiency of the Forestry Centres, because figures in the forest management and environmental reports also include work performed by other operators. Other operators in this case include Forest Management Associations and private companies. Regional monitoring of the NFP should therefore also include other operators besides the Forestry Centres.

Furthermore, the monitoring indicators are largely such that the Forestry Centre cannot influence them except indirectly through consultation and communications to forest owners.

Actual performance guidance of the Forestry Centres

The targets of the Regional Forestry Centres are laid down annually in the performance target agreement made between the Ministry of Agriculture and Forestry and the Forestry Centres. Achievement of the targets is monitored in annual performance reports of the Forestry Centres, which the centres submit to the Ministry of Agriculture and Forestry.

Problems in the performance and economic efficiency of the Forestry Centres were already noted in the Forestry Centre Evaluation conducted in 2004 (Metsäkeskusarviointi 2004), which identified problems particularly in performance measurement, because indicators were used in the performance guidance of the centres which the Forestry Centres could only influence indirectly. Such indicators include the tending of seedling stands and the recovery of industrial wood, which the Forestry Centres can only influence indirectly using guidance and consultation. In other words, the indicators of performance guidance do not do what they are supposed to, nor do they measure the performance of the Forestry Centres as they should.

6.4 Recommendations for the development of the implementation and monitoring of the programme

The forest management and environmental reports prepared by the Forestry Centres do not in their current form meet the needs of the NFP 2015, because the aim is to enhance efficiency and customer-orientation in the forest sector. Monitoring of the NFP 2015 should highlight how customer needs are satisfied and how the cost-efficiency of operations could be improved. Other central operators should also be covered in the report. The forest management and environmental monitoring reports do not currently take into account customer-orientation, nor do they focus on the needs of customers and the market, they only describe the area on a general level and in a very producer-oriented way. Furthermore, they focus exclusively on the current situation, and do not contain a sufficient forward-looking dimension.

The reports of the Forestry Centres on targets and their achievement are also deficient. In several cases the only mention is "the target was not achieved" or "the target was almost achieved". For example, the Regional Forest Programmes and the forest management and environmental report of the Häme-Uusimaa and North Ostrobothnia regions provide no clear numerical targets for many of the indicators. Several of the targets of the Forestry Centres that are monitored are in practice underachieved, which poses the question whether the targets are realistic or not. There are also problems in the publication of the reports, as in August 2007 only data for 2005 were available for some of the Forestry Centres.

Original targets against which the performance could be compared are not included in all forest management and environmental reports. The minimum requirement for efficient reporting is that, in addition to reporting the actual performance, also the target level would be indicated clearly. Target levels and their achievement should be presented clearly at least for the central operators. A simple table indicating targets and results would present the necessary information in a clearly readable way.

Table 6.1 Achievement of the RFP targets in three Forestry Centres in 2006

Lounais-Suomi 2006			Summary of RFP targets	
Variables monitored in performance agreements	NFP 2006-2010 RFP target*	Forest mngmnt. and env. report 2006**	Target attained	Target not attained
Industrial wood removals (mill. m3/yr)	5	4.4		x
Management of young stands (ha/yr)	13,000	not attained		x
Seedling stand management (ha/yr)	9,000	not attained		x
Improvement of young stands (ha/yr)	4,000	not attained		x
Ditch reconditioning (ha/yr)	5,500	not attained		x
Improvement of forest roads (km/yr)	120	75% of target		x
Use of forest chips (k-m3/yr)	450,000	331,000		x

Häme-Uusimaa 2006			Summary of RFP targets	
Variables monitored in performance agreements	NFP 2006-2010 RFP target	Forest mngmnt and env. report 2006	Target attained	Target not attained
Industrial wood removals (mill. m3/yr)	6.3	5.6		x
Management of young stands (ha/yr)	12,000			
Seedling stand management (ha/yr)	8,000	4 000		x
Improvement of young stands (ha/yr)	4,000	3 000		x
Ditch reconditioning (ha/yr)	1,500	1 000		x
Improvement of forest roads (km/yr)	80	attained	x	
Use of forest chips (k-m3/yr)	200,000	243,000	x	

Pohjois-Pohjanmaa 2006			Summary of RFP targets	
Variables monitored in performance agreements	NFP 2006-2010 RFP target	Forest mngmnt and env. report 2006	Target attained	Target not attained
Industrial wood removals (mill. m3/yr)	4.9	4.1		x
Management of young stands (ha/yr)	31,000			
Seedling stand management (ha/yr)	24,000	ca. 50% of target		x
Improvement of young stands (ha/yr)	7,000	exceeded by 25%	x	
Ditch reconditioning (ha/yr)	25,000	16,000		x
Improvement of forest roads (km/yr)	300	attained	x	
Use of forest chips (k-m3/yr)	350,000	154,000		x

*) NFP 2006- 2010 RFP target is a regional target included in performance agreements for 2007.
**) Forest management and environmental report 2006: actual performance as reported

Detailed and better targeted indicators should be developed for the monitoring of the operations of the Forestry Centres. Indicators describing the efficiency and profitability of operations in particular should be improved, so as to make regional indicators adequate also for the monitoring of the NFP 2015. These new indicators should focus on describing the operations of the Forestry Centres themselves.

In order to enable assessment of the real efficiency of each operator, the reports should clearly indicate which operations are the responsibility of the Forestry Centres, which those of other operators in the area. The forest management and environmental reports should provide more precise data on the operations of the Forestry Centres themselves. All reports by all Forestry Centres should preferably also provide clear information on which works are carried out by the Forestry Centres and which by other operators. For example, some Forestry Centres are already reporting on management planning for private forests and forest inventories in two categories, distinguishing between works undertaken by the Forest Management Associations and those by the Forestry Centre. Such data are now lacking in the forest management and environmental reports of many Forestry Centres. Reporting should be improved to make it clearer, and the role and responsibilities of each operator should be distinguished so as to allow the assessment and improvement of the real efficiency of the operators.

ANNEXES
Annex 1.

Recommendations/comments from the ex ante evaluation are underlined
Passages in italics are coloured in the draft NFP document.

VISION	More welfare from forests The previous version, Sustainable welfare from diverse forests, emphasised also the welfare of forests, not only that of citizens and/or the economy. It remains unclear what the programme is actually intended to achieve and how Finland is to be better than other countries.
VALUES	1. Actors in the forest sector ***appreciate nature***. 2. Operations in the forest sector must be ***competitive***. 3. The forest sector appreciates ***cooperation***.
MISSION	??
STRATEGIC OBJECTIVES	7 priorities (objectives) below and the system for the implementation, monitoring and further development of the programme **= Addition as recommended**

OBJECTIVES	AIMS	MEASURES
2.1. Securing a competitive operating environment for a developing forest industry	**2.1.1 Efficient utilisation of growing opportunities for harvesting** The aim is to increase *the harvest volume of domestic industrial roundwood to 65–68 million cubic metres* and to improve the cost-effectiveness of the procurement of wood.	1. Advisory services for forest management and forest management planning will be increased so as to ensure that forest owners are aware of the harvesting potential, management needs and valuable habitats in their forests.
		2. Utilisation of forest resource data to facilitate the use of forests will be increased, taking into account the economic and other needs of forest owners, as well as data protection. The Ministry of Agriculture and Forestry will investigate possible needs for regulating the use of forest resource data.
		3. In order to increase the activity among forest owners regarding forestry and forest management, the accessibility and quality of services for forest owners will be improved and their marketing enhanced, thereby also enhancing the competitiveness of the forest services market. The Forestry Centres will introduce network services through which forest owners will be able to access management and harvest data on their own forests. Using the same service, forest owners and actors in the forest sector will also be able to submit to the Forestry Centres their Forest Use Declarations and applications for funding under the Act on the Financing of Sustainable Forestry. They will also have access to information regarding the providers of advisory services, forest planning and forest management services as well as the buyers of wood.
		4. A development programme will be drawn up and implemented to increase logging on peatlands and to improve their cost-efficiency. (**taking water protection into account**)
		5. The Ministry of Agriculture and Forestry will initiate a revision of the Forest Act by investigating any possible needs for change in the Act with a view to attaining the goals laid down in the NFP 2015.
		6. Cooperation between actors in the forest sector and land use planners will be increased with a view to taking the preconditions of forest management into account in land use planning.
	2.1.2 Increasing the value added of industrial forest products and development of new products and services The aim is to ensure that wood will be used in increasingly diverse ways for competitive, customer-oriented products and services.	1. R&D in the forest sector will be increased by means of both private and public funding.
		2. New research knowledge will be produced under the national research programme of the forest cluster and otherwise, and R&D resources will be coordinated by Metsäklusteri Oy and other research organisations in the sector.
		3. Education and R&D networks as well as production and marketing networks will be consolidated. Resources will be allocated to improve expertise within the "from forests to market" value chain to support small and medium-sized enterprises in particular.
		4. The depreciation rights of forest industry companies and their services providers will stay at least at the current level to facilitate the adoption of new technology.
		5. The sales of industrial forest products in export markets will be promoted by participating in international cooperation projects and by supporting sales promotion work in Finland and neighbouring regions.
		6. The efficiency of R&D work on the health effects of wood-based substances in food and medicine will be improved across sectoral boundaries and utilising international research groups. The related breeding, processing and other quality requirements of wood as raw material must also be researched. **SUGGESTION: The efficiency of R&D relating to new ways of using wood-based compounds (e.g. food and medicine) will be improved across sectoral boundaries and..**
	2.1.3 Securing the condition of transport networks The aim is to ensure that the key transport networks used by the forest sector will be maintained and developed to allow transports of forestry and the forest industry to be carried out round the year and competitively with respect to cost.	1. The level of service of the public road and railway network and that of inland and maritime waterways will be secured throughout and they will be developed further by increasing the amount of annual funding from the administrative sector of the Ministry of Transport and Communications by 90 million euros. • The standard of the public low-volume road network will be improved, the amount of repairs of frost damage will be increased, and winter maintenance will be improved. • The quality of inland and maritime waterways will be maintained on an appropriate level with a view to securing the raw material supply and product exports of the forest industry. The lease on the Saimaa Canal will be extended.
		2. The condition of private roads will be improved by supporting road maintenance associations and services and by raising the annual State subsidy for private roads to 25 million euros.
		3. The condition of forest roads will be improved by raising the number of road reconditioning projects in private forests funded under the Act on the Financing of Sustainable Forestry to 2,000 during the programme period and the total amount to the level of 3,000 kilometres per year.

2.2. Forest management is profitable business	**2.2.1 Sustainable increase of roundwood production** The aim is to ensure that the annual increment in Finnish forests will increase to *100 million cubic metres by 2015 and will rise significantly thereafter*. Sustainable forest management can be secured through the good quality, health and diversity of forest resources. **NB. Changing growth conditions will affect the selection of tree species and the methods of tree breeding. Requires reference to aim 2.3.3 Taking climate change into account in forest management.**	1. The annual volume of forest management and reconditioning works will be increased to the level required in the Regional Forest Programmes (2006–2010) (the target for the harvesting of energy wood is higher than in the RFP). 2. The annual volume of fertilisation for growth will be increased to *50,000* hectares using consultation and without causing significant damage to waters. **NB: forest certification calls for restrictions on fertilisation volumes!** 3. The system for monitoring the quality of forest management in private forests will be implemented in a market-oriented way. 4. *A comprehensive national programme for the management of peatlands will be drawn up.* 5. Implementation of the Tree Breeding Programme 2050 will be continued, ensuring the continuous availability of forest reproductive material that is of suitable provenance for the site and that meets the quality criteria for silviculture. The programme for the establishment of seed orchards for forest trees will be reviewed to bring it in line with increasing fellings. 6. Recommendations will be drawn up on how to avoid any detrimental effects from the harvesting of energy wood to the vitality and diversity of forests. 7. The extent of forest damage caused by moose will be reduced by regulating the moose population and adopting forest management recommendations for moose winter grazing areas. The moose damage compensation system will be reviewed to ensure full compensation of damages. 8. Achievement of the aims will be supported by the provision of training for forest professionals, *diverse advisory services for forest owners that offer alternatives*, and by forest planning.
	2.2.2 Improvement of the profitability of forest management and development of the forest ownership structure The aim is to improve the profitability of forestry and forest management, to increase the average size of forest holdings, and to increase the number of forest entrepreneurs.	1. Taxation will be revised to give incentives to forest owners: • Inheritance tax and capital transfer tax on transfers of farms and forest holdings to the next generation will be abolished, emphasising the potential for continued, genuine production on the farm/holding. • Opportunities will be studied for using taxation to encourage forest owners to engage in active and sustained forestry and forest management and to undertake management on their own. • The forest deduction made in sales income taxation will be revised to bring it in line with real acquisition cost and the deduction will be extended to cover all forests on a holding. • The threshold of tax exemption of work done in delivery sales will be raised to 250 cubic metres. The harvesting of forest energy wood is not included in the value of this work. 2. Legislation will be developed to allow new forms of forest ownership, such as real estate and capital investment funds, and forest ownership in the form of limited liability companies. **Very important** 3. Communications will be enhanced concerning the division of holdings and opportunities for establishing jointly owned forests. 4. Instruments will be created for minimising the period of time that forest holdings are owned by estates of deceased persons. 5. The Cost-Effectiveness and Quality in Forest Management programme for the forest cluster by the Ministry of Agriculture and Forestry (2007–11) and the Cost-Effectiveness and Quality in Forest Management R&D programme by the Finnish Forest Research Institute (2007–11) will be implemented to improve the economic profitability of forest management and harvesting, to develop methods and raise the degree of mechanisation in forest management. The best forest management and harvesting methods developed in these programmes will be put in practice in collaboration with actors in the forest sector. 6. The structure of private forest ownership by age, gender, domicile and professional field will be determined. 7. Increasing advisory services for forest owners (see section 2.1.1).
	2.2.3 Safeguarding the supply of competent labour The aim is to secure sufficient and competent human resources for the increasing number of jobs in forest management, forest improvement, harvesting and transport.	1. Work methods, working conditions and technology will be developed that improve the productivity of work, working conditions and the attractiveness of work in the forest sector **for both men and women.** • Preconditions for working round the year will be improved. • Working conditions will be improved (advance clearing and correct timing of thinnings). • **Attention must also be paid to the stability of employment relationships and entrepreneurial risks.** 2. Corporate subsidies and other instruments will be developed and targeted to maintain and develop the professional skills of forest entrepreneurs and the employees of small enterprises, including business skills, corporate consulting and development of tools (employer, monitoring and accounting skills). 3. Compilation of monitoring statistics concerning the profitability of SMEs in the forest sector. 4. Wages, the **stability of employment relationships** and conditions in the forest sector will be developed in a more competitive direction without detriment to the competitiveness of services. • The attractiveness of the forest sector will be enhanced by improving its public image as a modern sector offering a wide range of different types of job opportunities. • Forecasting of labour needs will be developed (the Savotta process). 5. Measures to promote work-related immigration will be drawn up and implemented. 6. Development of vocational apprenticeship and adult education and professional on-the-job learning. 7. The availability of further education will be secured; participation in further or adult education will be supported with ESF funds and tax concessions. 8. **Access to professional training, its correct timing**, content and attractiveness will be developed. 9. Operating models in the forest sector will be developed, and any obstacles and restrictions to the functionality of the market economy will be mapped out and efforts made to abolish them. The functionality of the market will be developed by improving the efficiency of the operations of publicly funded organisations and the division of tasks between public and private actors. 10. The efficiency of the operations of public sector organisations will be improved in accordance with existing productivity programmes and by maximising the use of the purchaser-provider model. **Extremely important for the implementation of the programme. Should also cover actors in the private sector.** 11. Forest policy, education, employment and tax instruments will be considered in a comprehensive way for the implementation of the above measures.

2.3. Increasing the energy and climate benefits of forests	**2.3.1 Increasing the use of wood-based energy.** The aim is to increase the use of wood-based energy to *XX PJ* by 2015, and the use of forest chips three-fold, to about 10 million cubic metres annually, without causing any significant damage to biodiversity or the growth potential of forests. The aim is to secure the supply of energy for the Finnish forest industry for a competitive price. • **The aims are partly contradictory** • **Tax instruments to steer the use of energy?** • **Aims and measures for energy savings and improvement of energy efficiency must be incorporated.**	1. The operating environment of the forest industry will be taken into consideration in the guidelines and implementation of the report on the National Energy and Climate Strategy, and guidelines for the development of bioenergy will be drawn up as part of the report, constituting the national bioenergy programme. The proposals of the NFP for energy policy guidelines are: **(sentence incomplete?)**
		2. Solutions will be sought in international climate negotiations that would secure global implementation of emission reductions.
		3. The efficiency of the use of wood-based energy will be improved, including pilot, demonstration and commercialisation projects for new technology, and biorefinery technology will be developed with R&D funding from the administrative sector of the Ministry of Trade and Industry, as well as tax instruments.
		4. Decentralised wood-based electricity and heat production capacity will be increased by a total of 200 MW by 2015.
		5. The competitiveness of wood in heat production, in the co-production of heat and electricity, and in the production of wood-based transport fuel will be improved whilst ensuring that the solutions will not distort competition in the market for industrial roundwood.
		6. R&D on the harvesting and use of forest energy will be increased with broad-based R&D programmes and by publicising their results (Ministry of Trade and Industry, Ministry of Agriculture and Forestry).
		7. The use of energy and investment subsidies of the Ministry of Trade and Industry and the Ministry of Agriculture and Forestry as well as their information management will be enhanced. • Support for energy wood harvesting paid under the Act on the Financing of Sustainable Forestry will be increased to 20 million euros, corresponding to a harvest volume of 2–3 million m^3 of energy wood from young forests. • Nation-wide bioenergy counselling will be organised (Motiva, ProAgria, Forestry Centres). • Coordination and cooperation between administrative sectors will be improved. • New economic instruments for increasing the use of wood energy will be developed.
		8. Local heat production entrepreneurship will be developed.
		9. Possibilities for supporting wood-based heating systems for small residential buildings will be studied and communications about the use of wood fuel will be increased.
		10. The quality of energy wood harvesting will be monitored and the results publicised.
		11. Methods for trade in forest energy will be developed.
		12. The Government will speed up the adoption of biofuels to reduce traffic emissions, initially through legislation and later using market-based instruments as fast as possible taking into consideration technological development, domestic production and a reasonable price for biofuels. This calls for more resources for research and also for ensuring that second-generation technology can be adopted very early on in the 2010s. It is also important to ensure that domestic demand for transport biofuels can be satisfied predominantly with domestic production. **Can this be possible ever, even in theory?**
	2.3.2 Increasing the use of wood-based products The aim is to reduce CO_2 emissions by increasing the use of wood in construction and products.	1. Implementation of the Industrial Policy Programme for the Wood Products Industry (2004–2010) and of the Programme for Promoting Wood Building (2004–2010) will be continued. A management group will be appointed to coordinate the programmes.
		2. Public funding will be targeted to measures to promote the use of and construction in wood under the Government Resolution adopted on 17 March 2005.
		3. Resources will be allocated to education and training in wood construction and interior decoration, and use of wood in public construction projects will be increased.
		4. The image of Finland as a pioneer in the use of wood and especially in wood construction will be enhanced globally by favouring wood in public construction projects.
		5. Finnish wood expertise will be advertised abroad through international design competitions.
		6. Expertise and availability of services required for the restoration of Finnish constructed heritage will be strengthened and State financial support for the restoration of sites of cultural and historical significance will be increased.
	2.3.3 Taking climate change into account in forest management The aim is to promote carbon sequestration in forest management and conservation, and to prepare for the impacts of climate change.	1. The sufficient diversity of forest reproductive material and the suitability of its provenance for the site will be ensured. The use seed collected from seed orchards in artificial regeneration of will be promoted through the implementation of programmes for the establishment of orchards for forest reproductive material and seed. The use of seed from seed orchards will ensure that forests are regenerated with reproductive material that has been shown to be suitable for several different growth environments.
		2. Research into the impacts of climate change on forest species and the distribution of tree species will be increased in accordance with the evaluations and conclusions of the Climate Change Adaptation Research Programme 2006–2010 and the Functioning of Forest Ecosystems and Use of Forest Resources in Changing Climate Research Programme 2007–2011.
		3. Predictions of risk for forest damage caused by the increase in extreme climate events (e.g. insects, floods, storms) will be made, and the monitoring system for forest damage will be developed further.
		4. Emergency plans will be drawn up to mitigate storm damage and damage by immigrant species. It will be ensured that foreign pests that would endanger the health of our forest do not enter our forests through imported wood or wooden packaging.
		5. Future forest management recommendations will take into account measures for promoting the vitality of forests and carbon sequestration.
		6. Training and communications for forest professionals and forest owners on the prevention of forest damage, **the choice of species and breeding methods** will be increased.

2.4. Safeguarding the natural and environmental benefits of forests	**2.4.1 Safeguarding the biological diversity of forests** The aim is to halt the decline of forest species and biotopes.	1.	Unfinished conservation programmes will be completed during 2009.
		2.	The Forest Biodiversity Programme for Southern Finland (METSO II) will be drawn up and implemented on the basis of experiences from the METSO process, and sufficient resources will be allocated to the programme annually. • The implementation of measures in the METSO II programme and the impacts of its measures on the conservation of forest biodiversity will be monitored. • Management methods for production forests that contribute to the conservation of structural features of habitats and their appropriate enhancement will be promoted (prescribed burnings, retention trees and valuable habitats). • Alternative methods for safeguarding biodiversity in harvesting, management and conservation of natural habitats will be taken up in advisory services, forest planning and education and training. • Restoration and nature management in conservation areas will continue and further measures will be decided on the basis of an overall assessment after 2012. • The diverse management of forests on special sites will be promoted in accordance with Section 6 of the Forest Act. • Sunny esker slopes, herb-rich deciduous forests and heritage sites will be adopted as special sites for nature management.
		3.	The implementation of the measures in the action plan will be monitored and the research basis will be strengthened. • The effects of bioenergy harvesting on the vitality of forests and their biological diversity will be known and detrimental impacts will be prevented. • The dispersal capacity of forest species and their habitat requirements will be known better than at present, and the knowledge will be put into practice.
		4.	The genetic diversity of forest trees will be protected in accordance with the National Programme on Plant Genetic Resources for Agriculture and Forestry, and sufficient funding will be reserved for it. Finland will participate in the establishment of the Pan-European network for the protection of forest genetic resources with a sufficient number of conservation units.
	2.4.2 An improving knowledge base on forest species, habitats and forest resources The aim is to have a sufficient overall picture of forest species and habitats and the means for safeguarding diversity to be used as a basis for decision making.	1.	**Sufficient (?)** resources will be reserved for research and training.
		2.	The operations of research institutions will be developed regarding, for example, the identification of and research on multi-disciplinary and broad research topics, and the planning and implementation of follow-up programmes.
		3.	A new multi-disciplinary research programme (Securing the Functioning of Forest Ecosystems and Use of Forest Resources in Changing Climate) will be established to support decision making and practical action.
		4.	Existing monitoring systems on the ecological sustainability of forests will be continued and new follow-up programmes will be established for necessary areas, such as the inventory of endangered species at specific intervals. • The impacts on species and habitats of actions in the METSO I and II programmes will be determined. • A system for monitoring and evaluating the state of and trends in forest biodiversity in Finland will be implemented as network cooperation. • The evaluation report on endangered species will be completed in 2010. • The impacts of measures on forest biodiversity in conservation areas will be evaluated at regular intervals (merge with the second point). • The monitoring criteria for nature management in production forests will have been revised collaboratively between forest management and nature conservation actors (merge with the second point). • National Forest Inventories will be developed so as to provide sufficiently exact information for monitoring the development of all forest resource data nationally, differentiated by vegetation zone and Forestry Centre. • Development of the flying squirrel population will be monitored.
		5.	The biological cultural heritage of forests and its significance/status as part of forest biodiversity will be determined.
		6.	Statistics on forest protection will be developed.
	2.4.3 Securing the condition of waters and soil The aim is to prevent any increase of impacts of forest management on waters by 2015, and to enhance soil protection. **The measures must be in line with the future Water Act.**	1.	Consultation, training and communications concerning the recommendations for forest management and water protection, soil management and legislation by forest organisations (€15,000/year).
		2.	Development and adoption of geographic information systems to enhance water protection in forest management by 2010; forest management as part of broader regional planning and implementation of water management, which takes into account different forms of land use and the total environmental load on waters (€30,000/year).
		3.	Establishment and maintenance of a national network for monitoring environmental load to waters caused by forest management (€250,000/year).
		4.	Increasing research on water protection and soil in forest management and mapping out risk areas (€565,000/year).
		5.	Preparations will be made for changes in forest management caused by climate change; steps will be taken to prevent soil erosion, lowered production capacity, and increasing load of nutrients and solid particles in waters; *€xx??*
		6.	Implementation of water protection in practical forest management: implementing cost-effective structures for water protection, reconditioning of valuable small water bodies and areas in production forests of lesser value (3.5 + 1 million euros/year added funds from the Act on the Financing of Sustainable Forestry).
		7.	Finland will participate actively in the preparation of the Soil Framework Directive in the EU.

2.5. Forests support regional development and provide a source of culture and recreation	**2.5.1 Utilisation of the regional strengths of forests and integration of the multiple uses of forests** The aim is to develop Regional Forest Programmes and other procedures including stakeholder participation so that they will promote forest-based economic activity and the integration of the multiple uses of forests in a diverse way. **How are programmes carried out under the Ministry of the Environment taken into account in the updating of the RFPs?**	1.	The process, content and implementation of Regional Forest Programmes will be developed.
		2.	Procedures will be developed further to increase opportunities for citizen participation in Regional Forest Programmes and land use planning.
		3.	Opportunities of forest owners to participate in land use planning and other processes will be improved.
		4.	Interaction between the different uses of forests will be increased by diversifying the composition of the Regional Forest Councils e.g. through the inclusion of ecological entrepreneurship experts, and by gathering a national forum for examining the different uses of forests. The role of the Regional Forest Councils and Regional Forest Programmes within regional development programmes will be enhanced as instruments for directing forest management operations and for promoting forest-related economic activity that takes into account special regional features.
		5.	Resources and expertise in forest management planning for private forests will be strengthened to increase interaction and to ensure that the multiple uses of forests are taken increasingly into account.
		6.	The benefits and impacts of the multiple uses of forests on the regional economy will be studied, including impacts on gender equality, and methods will be developed for assessing the mutual interaction of the different uses of forests.
		7.	Integration of the multiple uses of forests as well as processes and instruments for promoting interaction will be developed.
		8.	Steering groups will be established in the Environment Centres to bring together representatives of different stakeholder groups and to participate in the preparation of the regional land use plans.
		9.	Natural values and the cultural heritage of forests will be included in the environmental and cultural environment programmes of the Regional Environment Centres, and it will be ensured that regional actors are sufficiently aware of the characteristic and special features of forests in the region.
	2.5.2 Promoting diverse entrepreneurship The aim is to strengthen entrepreneurship based on material and immaterial forest products and services, and to promote the emergence of new enterprises and new jobs in this area. *Include this under other sections?* **If moved, then under 2.5.4**	1.	Forest-based entrepreneurship of all kinds will be strengthened (including nature tourism, natural produce industry, nature and landscape services) by improving the product development services provided for entrepreneurs and companies, and by increasing expertise related to production processes, business operations, marketing and cooperation.
		2.	Business in this area will be encouraged using taxation and start-up assistance from the Ministry of Employment and the Economy and the Ministry of Agriculture and Forestry as well as development and investment subsidies, without distorting competition.
		3.	Corporate subsidies and other instruments will be developed and targeted to maintain and develop the professional skills of forest entrepreneurs and the employees of small enterprises. **Special attention to women entrepreneurs.**
		4.	Examples of successful enterprises in the forest sector will be publicised **as part of a broader communications campaign?**
	2.5.3 Responsible use of the right of public access The aim is to safeguard traditional rights of public access in their current extent by strengthening common generally acceptable modes of operation.	1.	Education about the right of public access will be included in comprehensive school curricula.
		2.	The general public will be informed about the content and meaning of the right of public access and about best practices. **(points 1 and 2 could be combined)**
		3.	Citizens will be encouraged to make use of the right of public access to maintain a sense of living nature among the increasingly urban population.
		4.	Rules of conduct and **regional** models of operation for the exercise of the right of public access by nature entrepreneurs and other users of nature will be clarified and publicised, and a working group will be appointed, if necessary, to organise a broad hearing of stakeholder groups.
	2.5.4 Promoting forest-based tourism and natural produce industry The aim is to diversify economic operations and entrepreneurship based on material and immaterial forest products and services. **Good point to separate business and recreational use**	1.	An action plan for the natural produce industry will be drawn up to develop strong regional centres of expertise that are linked to different sectoral clusters.
		2.	The usability of the national information service of ecological entrepreneurship as well as the compilation of statistics on this field will be improved, and methods and model contracts will be developed for the utilisation of geographic information systems data on forests by ecological entrepreneurs.
		3.	Sustained long-term continuation of the professorship in nature tourism will be secured.
		4.	Operational models will be developed to promote **hunting and other activity-related** tourism.
		5.	Reindeer will be developed into a key attraction for tourism in Lapland. **Suggestion: Factors for attracting tourism to Lapland will be developed.**
		6.	Research and pilot projects will be used to develop the assessment of the value of the immaterial benefits of forests as well as their commodification, and to develop operating models for the exploitation of ecological values.
		7.	Entrepreneurship in the management of nature conservation areas (permanent and temporary/voluntary) and of nature and landscape management sites will be promoted.
		8.	Incentives will be used to encourage ecological entrepreneurship, such as taxation and start-up assistance from the Ministry of Employment and the Economy and the Ministry of Agriculture and Forestry, as well as development and investment subsidies. Award of such subsidies must not distort competition.

	2.5.5 Development of forest-based recreation The aim is to take the diverse needs of the use of forests for outdoor activities and recreation as well as game management into account in forest management. Hiking routes are built and maintained so as to increase the recreational use of forests and direct this to areas targeted for outdoor activities as well as to facilitate access to nature and culture sites. **Quire a few proposals for measures compared to the other aims.**	1.	In areas intended for recreational use, forest management measures will be devised so as to serve the recreational users of the forest.
		2.	Municipalities, parishes and forest-owning communities will organise the management of their urban woodlands in accordance with objectives of the classification of green spaces. Specialisation training in the management of urban woodlands will be increased. **A professorship in urban woodland management is needed.**
		3.	Measures recommended by the working group on municipal recreational forests and State-owned recreational areas will be implemented and necessary resources allocated to them.
		4.	Attention will be paid in forestry and forest management to the preservation and development of game habitats and the courting grounds of the Capercaillie in particular. Additionally, financing and operating models will be developed for taking game management into account in private forest management.
		5.	Hiking routes will be planned based on the land ownership situation in the area and the right of landowners to decide on the use of their forests. In creating new hiking routes, different types of proceedings will be used to take into account land ownership and continued servicing and maintenance of the routes. In constructing the routes, funding for their maintenance must also be settled. **This must be linked to the plans for using the areas and forms of collaboration to be developed.**
		6.	Metsähallitus will extend the scope of application of the quality classification for hiking routes.
		7.	Classified routes will be entered in the geographic information system and accessible on the Internet (luontoon.fi or liikuntapaikat.fi).
		8.	Presentation of forest management measures at recreational sites will be promoted.
		9.	A research programme will be established for investigating the social and cultural impacts of forests and their significance for human wellbeing.
		10.	Forest-owner-oriented functional mechanisms for safeguarding diversity and the production of recreational values will be developed and implemented, such as trade in recreational and natural values.
		11.	The impacts of climate change on the recreational use of forests will be studied.
		12.	The opportunities of municipalities will be enhanced for including unbroken forested areas as recreational spaces in land use planning and management, while securing diversity and ensuring the accessibility of sites of recreational, cultural and historical value.
		13.	The impacts of measures on the economic and recreational use of forests will be clarified in land use processes and in the markings of land use plans.
		14.	Sustainable tourism and recreational use in conservation areas will be promoted. Hunting and fishing will for the most part continue to be allowed in the so-called other nature conservation areas to be established on the basis of the Nature Conservation Act currently under revision. These are based on the Natura network. The extent of hunting and fishing allowed in these areas will be decided on a case-by-case basis by taking into account the right of public access, and recreational and natural values. The necessary restrictions will be determined in collaboration with the stakeholders.
		15.	The impacts of motorised traffic on nature and the regulation and means for harmonising motorised traffic with other uses of nature will be studied.
		16.	Models will be created for the operation and financing of trade in landscape and recreational values.
		17.	Project funding for private forests under the Act on the Financing of Sustainable Forestry will be targeted to projects for the management of forest ecosystems, taking into account the needs to survey and manage regionally important landscape, recreational and cultural sites. Information about funding opportunities will be publicised for landowners and other operators in this field.
	2.5.6 Enhancing landscape considerations in forest management The aim is to preserve forest landscapes as part of the attraction of rural areas and the Finnish cultural heritage.	1.	Practices for taking landscape aspects into account in forest management and natural resources planning arising from the local level will be utilised.
		2.	The implementation of recommendations concerning the landscape and multiple use of forests in forest management recommendations will be promoted. Information on landscape management and multiple use will be utilised in improving the expertise of forest professionals.
		3.	Methods for landscape planning will be developed.
		4.	**Training** courses and degrees for forest professionals in forest landscape management and planning will be developed and increased.
		5.	Models will be created for the operation and financing of trade in landscape and recreational values.
		6.	Project funding for private forests under the Act on the Financing of Sustainable Forestry will be targeted to projects for the management of forest ecosystems, taking into account the needs to survey and manage regionally important landscape, recreational and cultural sites. Information about funding opportunities will be publicised for landowners and other operators in this field.
	2.5.7 Maintaining and developing forest-based culture The aim is to maintain and utilise forest-related cultural heritage and contemporary culture on a broad front.	1.	The sense of living nature among young people and other citizens and their awareness of forest-related cultural heritage and the current status of forests will be maintained and increased.
		2.	Forest culture will be incorporated in school curricula.
		3.	Organisations in the forest sector will cooperate with schools and produce teaching material on forest culture on the Internet and in brochures. **Points 1–3 could be combined into one.**
		4.	The Natural Heritage Services Unit of Metsähallitus and the National Board of Antiquities will in collaboration carry out an inventory of the sites of cultural and historical significance in State forests in 2008–2013, enter them into the geographic information system and create operative models for their protection and use. Possibilities for extending the inventory to cover private lands will be studied in this connection.
		5.	The inventory will also include a survey of how the sites are being managed and how they can be used for the purposes of tourism, recreational use and preservation of cultural heritage.
		6.	Forest-related **knowledge tourism** will be developed **(what does this mean?)**.
		7.	Knowledge will be produced on the utilisation of forest culture in innovation and the provision of cultural services, as well as on opportunities for cooperation between different forms of culture.
		8.	The relationship to forests of immigrants from different cultural backgrounds will be surveyed, including the impacts of cultural differences and related opportunities from the perspective of forests. The cultural relationship of Finns to forests and to the various uses of forests will be publicised among immigrants.

2.6. Improving expertise and competitiveness of the forest sector through education, research and development **Although education and R&D are strictly speaking MEANS for attaining many other aims, they can be considered an independent strategic objective. The attainment of the partial aims of all other objectives requires investment in education and research.**	**2.6.1 Education and R&D support the creation of new business and entrepreneurship.** The aim is that Finnish R&D in the fields of forests, wood and paper will be of the highest international standard and contribute to the success of the entire sector. **What are the role, significance and resources of research in universities (basic research) and outside the forest cluster?**	1. The research strategy of the Finnish forest cluster will be implemented and research resources will be targeted in accordance with the strategy and principles set down in the European Forest-Based Sector Technology Platform. 2. The operating environment of the forest cluster's strategic centre for science, technology and innovation will be secured in cooperation with the industry. 3. The operating environment of the Forest Industry Future competence cluster, the Living Business cluster as well as clusters that support the use of wood for energy production within the Centre of Expertise Programme will be secured for the programme period 2007–2013. 4. International funding and opportunities provided by the European Forest Institute (EFI) and the European Research Area (ERA) will be used actively. 5. Finland will actively seek to influence the content of EU research programmes by participating in the preparation of the programmes, and will actively use EU research funding in the forest sector. 6. Actions to promote the use of wood and wood construction will be organised jointly by the ministries and the industry into a coordinated entity, and an organisation to continue research in wood products industry will be created. 7. Sufficient funding for the initiatives mentioned above will be secured in the budgets of the Ministry of Trade and Industry, the Ministry of Education, the Ministry of the Interior and the Ministry of Agriculture and Forestry. 8. The strategic management of R&D organisations and education institutions will be developed and supported to improve networking. 9. An initiative will be presented for launching, together with the National Technology Agency of Finland, a technology/development programme for developing service operations in the forest sector.
	2.6.2 Efficient communication of research results to users The aim is to ensure that research knowledge produced in the forest sector will be put efficiently into practice. Research knowledge must be easily accessible, and it must be improved so as to produce new innovations, products, services and enterprises.	1. Operating procedures and structures that promote interaction between researchers, mediating organisations and the users of knowledge will be supported. **Points 1 and 4 could be combined.** 2. Funding for research institutions in the forest sector, universities, institutes of higher education, vocational institutions and other organisations that produce R&D knowledge will be complemented with sufficient resources for the provision of information and library services and communication and publication. 3. Public administration will increase the supply of electronic services and products and will ensure the implementation of the recommendations of the Memorandum of the Open Access Working Group (Ministry of Education 18.3.2005) by promoting the accessibility and usability of research data produced by public funds. 4. The accessibility, availability and usability of research knowledge – projects, publications and experts – will be improved. For example, R&D organisations will construct or alter their information and communication systems so that research data can be gathered or transferred into www services or portals of the forest cluster (standards, interfaces, e.g. Hankehaavi, Public Sector Contact Directory Julha). 5. The Ministry of Education will support the acquisition of electronic documents and basic information material open to the public.
	2.6.3 Education system that produces high-standard professionals The aim is to secure a sufficient supply of trained labour for the forest sector in the future, and to ensure that qualifications and education will meet current and future practical needs. The Finnish education system will be developed actively and in an anticipatory manner. **The problem is to attract women to education and to ensure that professionals (men and women) stay in the sector after completing their training. This has been addressed fairly well under section 2.2.3.**	1. A campaign will be conducted to increase the attractiveness and recognition of education in the forest sector, **also among women and young people**, and to strengthen the public image of the sector as a modern branch that offers a wide variety of job opportunities. 2. The number of places in education and training will be adjusted to reflect the need. 3. Education in the sector will be centralised into units with robust expertise and resources. 4. A system will be developed for monitoring the placement of graduates in the job market and the meeting of education and the needs of labour in the sector so as to enable more rapid response by the education sector to changes in the labour market. **Monitoring statistics and indicators differentiated by gender.** 5. The content of education will be actively developed to satisfy the current and anticipated needs of the labour market in the sector.
	2.6.4 Promotion of forest-related knowledge and skills among children and young people The aim is to increase the forest-related knowledge and skills of children and young people by enhancing cooperation between forest organisations, comprehensive schools and daycare centres. **This is already addressed under section 2.5.7, but as a separate objective it gets more visibility.**	1. Coordinated cooperation between forest organisations, education administration, comprehensive schools and daycare centres will be developed further. 2. Steps will be taken to ensure that education about forest-related matters is included in sufficient measure in comprehensive school curricula. 3. Preconditions for including forest education in the basic and further education of teachers will be supported. 4. The economic importance and opportunities of the forest sector and its role in implementing sustainable forest management will be highlighted in teaching materials. 5. Programmes drawn up specifically for the Forestry Centres will be implemented for increasing forest-related knowledge and skills among children and young people and increasing the number of apprenticeship and on-the-job training positions. The operations of professional networks in the implementation of the programmes will be supported. 6. Cooperation between forest sector organisations and primary and secondary schools as well as education institutions in the forest sector will be enhanced to increase the amount of summer labour and trainees in seasonal work in the sector. 7. Leisure activities that familiarise people with forests and professions in the forest sector will be supported.
	Proposal for a new aim: Special support for attracting women into the forest sector	1. Because the forest sector is very much dominated by men, attracting women to the sector could be one possible solution for both labour shortage and wood supply. However, this would call for tailored education and training for women, and more efficient advisory services for women. A number of general measures as well as special actions for promoting gender equality are presented in the final report.
	2.6.5 Strengthening futures studies in the forest sector The aim is to create permanent systems and procedures for anticipating developments in the forest sector as well as related trends in a way that the results of such forecasting work can be used for the development of the forest sector. **The placement of this aim could be reconsidered.**	1. Steps will be taken to secure the allocation of resources for futures studies in the forest cluster within the R&D activities funded by the public sector. 2. The sustained, permanent operations of the Future Forum of Forests in Finland and other similar operating models will be promoted, and steps will be taken to actively put the results of their work into practical use by the relevant operators.

2.7. Promoting sustainable forest management through international forest policy	**2.7.1 Finland will participate actively in international forest policy** The aim is to ensure that international processes and actions promote sustainable forest management and secure the long-term operating environment of the forest sector.	1.	Finland will act in a coordinated manner using high-quality initiatives to influence international forest policy processes.
		2.	International forest treaties and commitments will be implemented vigorously in Finland.
		3.	Prevention of forest destruction and promotion of sustainable forest management will be taken into account in development cooperation as well as in public procurement, taking into consideration the special characteristics of each country.
	2.7.2 Coordinated actions of the European Union in matters pertaining to the forest sector The aim is to ensure that decision making in the EU relating to forests, forest management and forest-based industry will, insofar as the Community has jurisdiction in the matter, be coordinated and will take into consideration the special characteristics of the forest sector as well as national differences, and that stakeholder groups will participate widely in the preparation of initiatives.	1.	Through initiatives and position statements, Finland will seek to ensure that the processing of forest-related matters would be coordinated and broad-based, and that sufficient information regarding the importance of the forest sector in the EU, in particular the special features of the forest sector in Finland and the northern coniferous zone, will be available in the preparation of EU initiatives.
	2.7.3 Ensuring good cooperation in the preparation of forest matters between administration, research and stakeholders The aim is to ensure that broad national cooperation between the administrative sectors and stakeholders in the preparation of international forest matters will be developed further. The aim is also to strengthen the role of scientific communities, non-governmental organisations and different forest organisations in international interaction.	1.	Broad-based national preparation of initiatives and position statements of Finland will be continued, **highlighting strategic planning and a market-oriented approach.**
		2.	Expertise of organisations in the sector, including research **and stakeholder groups** will be used efficiently in the preparation.
		3.	Finland will support the operations of forest research organisations and the participation of stakeholder groups and NGOs in international forest policy processes.
	2.7.4 Prevention of illegal logging and promotion of the use of legally produced wood-based products The aim is to develop further both national and international means for preventing illegal logging and to promote the use of sustainably and legally produced wood-based products.	1.	The national programme for the prevention of illegal logging will be implemented efficiently.
		2.	Finland will participate in the development of international instruments for the prevention of illegal logging **and will support administrative and social development initiatives that promote actions to reduce illegal logging in target countries.**
	2.7.5 The forest sector in Finnish development cooperation and other bilateral forest cooperation The aim is to promote sustainable forest management and thereby to mitigate poverty and prevent environmental threats.	1.	Finland will actively continue development cooperation in the forest sector and other bilateral forest cooperation.
3. System for the implementation, monitoring and further development of the programme	The aim is to ensure that the system for planning and implementation of forest policy will function efficiently and in a participatory manner, and that the public services needed by the forest sector are produced in a high-quality manner and cost-efficiently.	1.	*Administration in the forest sector will be developed in the context of the reform of regional administration to ensure that issues are maintained as coordinated entities and that funding through State subsidies for the Forestry Centres will meet the objectives of NFP 2015.*
		2.	*The operating procedures of the Forestry Centres will be unified and developed further, and cooperation between them and other operators* **in the forest sector** *will be increased* **(also including the Employment and Economic Development Centres and Environment Centres).**
		3.	The emergence of networks between forest sector operators, stakeholders and private citizens will be supported through development and pilot projects.
		4.	The division of tasks between actors in the public and private sectors will be clarified.
		5.	Customer satisfaction in the field of public services in the forest sector will be monitored annually.
		6.	Forest-related decision making in the administrative sectors will be coordinated based on the guidelines of the National Forest Programme 2015 for promoting forest economy.
		7.	The NFP and RFP processes will be developed further using R&D projects and evaluations.

Annex 2.

EFI	European Forest Institute
ERA	European Research Area
ESF	European Social Fund
EU	European Union
ISTO	Climate Change Adaptation Research Programme
METSO	Forest Biodiversity Programme for Southern Finland
MIL	Functioning of Forest Ecosystems and Use of Forest Re sources in Changing Climate Research Programme
NFP	National Forest Programme
NGO	Non-governmental organisation
OSKE	Centre of Expertise Programme
R&D	Research and development
RFP	Regional Forest Programme
SME	Small and medium-sized enterprises

NB: As from 2008 the functions of the former Ministry of Trade and Industry are carried out at the Ministry of Employment and the Economy.

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