



Forest Resource Information Systems and Forest Planning 2007–2010

*A research programme by
the Finnish Forest Research Institute, Metla*

METLA

Further Information

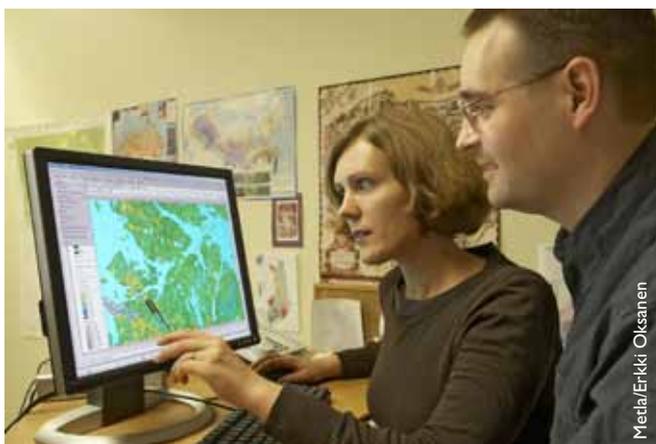
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Background and challenges

In Finland, strategic forest planning at national and regional level covers forests in all ownership categories (non-industrial private, company, state and others) and has been supported by calculations based on sample plot and tree data from national forest inventory (NFI). Forest management planning at company, forestry unit or forest estate-level is based on standwise forest inventory. In forest companies and in Forest and Park Service (state forests) stand data is stored in their own real-time forest information systems and kept up-to-date when changes are detected. Most of the Finnish forests (about 14 mill. hectare of forest land) are owned by non-industrial private forest (NIPF) owners. For NIPF, comprehensive and homogenous forest data are collected by regional Forestry Centres periodically (traditionally with 10–15 years interval) using standwise inventory.

The Finnish forestry is facing new challenges due to e.g. globalisation and consequent requirements for improvements in cost-efficiency which needs to be balanced with the multiple needs of people and society. Enterprises responsible for wood procurement or silvicultural work seek cost-efficiency via logistics for which they request up-to-date forest resource data. Forest owners seek for their own forests feasible (in relation to available markets and limitations set by the society) and effective (in relation to their forest resources and interests) combination of forest ecosystem services and products with subsequent operations. The government seeks effective policy measures to fulfil the current and future needs of people and society which sometimes contradict with the market behaviour of forest enterprises and forest owners.

Luckily there is potential to improve both cost-efficiency and effectiveness in planning. For example, so called multi-source NFI (MNFI) based on satellite imagery and intensive field measurements covering annually the whole country is applicable for monitoring and strategic planning purposes at regional (from national up-to local) level. Remote sensing techniques with higher resolution (e.g. digital aerial photographs and laser-scanning from the aeroplane) have been successfully integrated with field measurements in producing stand data. Furthermore, forest owners have an access to a wider selection of forest inventory and planning services. For example, Forest Management Associations, forest companies (e.g. Tornator, Stora-Enso, UPM and Metsäliitto) and various forest service providers offer tools for planning of forest operations based on real-time forest information services.



Aims of the programme

The objective of the programme is to support the development of effective forest planning systems and cost-efficient forest resource information systems used and maintained for planning purposes in different forest organizations. The programme has two focus areas:

- 1) forest monitoring, planning and improvement tasks *at the regional level*, including the maintenance of regional forest information
- 2) planning of forest management and wood sales *at the forest owner level*, including the continuous maintenance of stand level forest data.

Research themes

The programme will study and develop activity models and ICT-applications for forest planning and its data collection tasks, and cost-efficient integration of forest information and ICT-applications into various forest planning tasks and forest resource information systems used in them.

Challenges are, for example:

- integrating cost-efficiently forest information system of the planning organization itself (e.g. stand data), forest information of other operators (e.g. remote sensing data, sample plot and tree data, land-use maps) and ICT-applications (forestry models and analysis systems) and
- effective combination of government supported and market-based products and services in forest planning needed to support the competitiveness of the Finnish forestry.

Resources and cooperation

An additional objective of the programme is to improve cost-efficiency in research and development. Therefore, the programme has not initialised any new projects. Instead, the programme is a network of research groups and different actors in forestry. In the negotiations which involved regional Forestry Centers and the Forestry Development Centre Tapio, forest owners and their unions, forest industry, ICT-companies in forestry, and researchers, it was found out that there are already several on-going research and development projects related to forest inventory and planning but carried out by different organisations or research teams and funded by different sources.

Therefore, the new programme was directed to facilitate the interaction between the actors in forestry, producers of forest information, developers of ICT-applications and researchers. The research programme is synchronized with the programme on “Production and utilisation of up-to-date forest resource data” co-ordinated by the Ministry of Agriculture and Forestry (MAF) in Finland. The programme has built international networks through meetings and seminars - organized together with European Forest Institute (EFI), MAF and University of Jyväskylä -, researcher exchange and visits, and project proposals. In addition, discussion and co-operation with the forest industry companies has been activated through meetings and seminars.

The role of the programme co-ordination is to offer support services for this interaction through, for example, advisory group, annual seminar and yearbook, web site and project database, educational and training events, information exchange with different stakeholder and customer groups, and experimental/demonstration projects and case studies.

Programme homepage: