**European Forest Research Plan(EFRP)**

summary for discussion at the side session of the

EFI Annual Conference in Istanbul, Turkey, 4 October 2012

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**Agenda for the side session:**

- Introduction to EFRP

- plenary discussions

- group work

- reporting to the plenary

This is an excerpt of a first compilation of the sections of the EFRP. Work on the European Forest Research Plan started in spring/summer 2012. The topics and research needs have been discussed by an expert group from the EFI member network, and are now up for discussion and further inputs by EFI associate members. In the course of November/December, the full draft will be send for consultation by EFI members as well. The aim is to have the EFRP published in early spring 2013.

**Background**

The aim of the European Forest Research Plan (EFRP) is to give a comprehensive and collective view on future needs for forest and forest related research, targeting in particular EU’s next Framework Programme for research, **Horizon 2020,** and how forest research - in a broad sense - can contribute to its Societal Challenges. The EFRP will seek to identify pan-European research needs that are novel and forward-looking, also embracing other sectors outside traditional forestry. It is elaborated in synchrony with the FTP’s Strategic Research Agenda which is also currently being developed, and complements it in issues of relevance to the forestry value chain as defined first and foremost by the research community.

**Main themes of the European Forest Research Plan**

The following major themes have been identified for the EFRP:

* Forests and human health & well being
* Sustainable forest management, and trade-offs, based on ecological principles

### Impact assessment of forest management in a multisectoral environment

### Ecosystem services

### Changing forest ownership & new opportunities, markets

#### Futures, foresight, driving forces, market trends

* Woody biomass for bioenergy; availability and sustainability

### Transport and logistics

* Tree physiology, genetics & breeding. Wood quality

### Managing forests in Europe in an era of change and globalisation

### Governance and socio economics of forest management in “socio-ecological systems”

### Knowledge transfer, communicating forest science and the science-policy interface.

**Research needs coming out of the first draft are listed below:**

**Forests and human health & well being**

* forests as a source of physical health, mental health, combating obesity etc.
* urban forests as source of well-being, health, mental; urban environment, cooling effect
* perception of the green environment
* pharmaceuticals from forests (high value added products!)
* development of services to address these needs
  + incentives to forest owners to develop these services

**Sustainable forest management, and trade-offs, based on ecological principles**

#### Lessons from biodiversity function experiments and evolutionary ecology for silviculture

#### Recent influences from complexity science on silviculture

#### Virgin, ancient and unmanaged forests as reference areas for learning from nature

#### Ecological indicators for evaluating sustainable management

* Management regimes at various scales, and fulfilment of functions

### Impact assessment of forest management in a multisectoral environment

* Conceptual frameworks for impact assessment research
* Scenario analysis; Tools and methods, and temporal and spatial scales
* Indicator systems, and comparative valuation of the impacts
* Data and monitoring systems, scaling issues
* Science policy interface

**Ecosystem services**

* Indicators for forest ecosystem functioning and ecosystem services
* Methods to quantify forest ecosystem services, analysis and optimization
* Further development of the forest ecosystem services framework
* Standardized procedures for the application and evaluation of valuation methods
* EU wide database with detailed description and results of existing ES valuation studies
* Systematic approach for the estimation of cost of provision of ES
* Policy instruments aimed at fostering the sustainable and socially optimal provision of forest goods and services at different scales
* New marketing instruments and channels for the supply of forest goods and services
* Innovative forest policies in the context of wider rural and joint territorial development strategies
* Advanced methods for identifying, quantifying and valuing the impact of regulations (institutions/policies) and actions on the flow of ecosystem services

### Changing forest ownership & new opportunities, markets

* Evaluation of the landownership structure and the objectives, behaviour and attitudes of forest owners
* State forest enterprises: balance between commercial activities and the provision of public good
* Assessing existing innovation systems and support measures for innovation by land owners; evaluation of future opportunities and threats related to innovation and competitiveness among forest owners
* Understanding and modelling the relationship between landownership structure and the EU forest-related policies, e.g. rural development policy, renewable energy policy, biodiversity conservation and climate change policies, water policy etc.

#### Futures, foresight, driving forces, market trends

* Climate change and renewable energy markets, and the related policies
* Structural changes in global forest products markets (e.g. declining communication paper consumption; and new technology, regulation and business environment for wood products)
* New wood fibre based products (bioenergy, biochemicals)
* Ageing, more affluent and urbanizing Europe increasing the demand for forest services (e.g. recreation, tourism, urban forests, etc.)
* Increasing importance of many types of forest sector services in terms of value added, turnover, and employment in EU; and simultaneous decline in EU manufacturing in terms of these indicators
* Forest sector becoming increasingly cross-sectoral and diverse.

**Woody biomass for bioenergy; availability and sustainability**

* Integrated biomass supply chains for material and energy use in different forest conditions and under sustainability requirements
* Assessment of realisable biomass potentials considering cost-supply curves under variable policy frameworks and incentives
* Decisions support systems for optimised biomass use in small, medium, and large-scale bio-energy facilities to enhance efficiency of biomass use across diverse socio-economic conditions.
* Societal perception of intensified forest management systems with increased residue extraction
* Practical assessment methods and criteria for sustainable use of woody biomass in forests, other wooded lands, and from landscape management practices.

### Transport and logistics

* Development of harvesting operation planning, harvesting systems
* Navigation in the stand (development in forest harvesting machinery)
* Improvements in log identification and data association
* Development of data handling, communication between stakeholders, data platforms, compatibility of data systems, costs for data supply
* Routing logistics, optimization of forest road networks
* Transport systems and modes

**Tree physiology, genetics & breeding. Wood quality**

#### Understanding of the whole ecosystem functioning and interaction between all species, including microbial communities

* Highly intense plantations and their potentials, and locations
* Plant physiology: fast methods for non-destructive, high throughput trait assessment
* Plant physiology: species adapted to climate change
* Wood technology: Methods for rapid timber and wood assessment for breeding selection and wood/timber allocation
* New breeds for specific raw materials (for e.g. refineries)

### Managing forests in Europe in an era of change and globalisation

#### Large-scale forest management challenges

* Multi-functional forestry vs. segregation – separation of the forest ecosystem services on a large-scale in Europe?
* Increase in productivity (CO2 fertilizing effect – longer vegetation times) vs. increased disturbances
* Forest management reactions on extreme events
* Adaptation vs. mitigation - Immediate sharp reactions (i.e. large scale forest conversion) or the “climate ramp” in forest management?

#### Strategic and future European scale differentiation of management

* Consequences of drastic changes of management strategies (i.e. rotation times, thinning regimes, import of new non-native species) on ecosystem goods and services?
* Reaction of management on invasive species – new challenges
* How should human intervention react on biome shifts? How can they be modelled?

#### Integration of global developments into forest management decisions in Europe

* How can economics be better taken into account when adapting forests in Europe
* Forest management and socio-economic adaptive capacity in Europe
* Linking large-scale dynamic vegetation models to market models – the role of international trade within global change

#### New tools for the management of Europe’s forest from the local to the continental scale

* Integration of uncertainty into management decisions
* Intelligent use of ensemble forecasts for forest management decisions
* New models for simulating management strategies

#### Diversified policy issues and required management responses (REDD, CAP, EUTR…)

### Governance and socio economics of forest management in “socio-ecological systems”

* Distributional aspects of environmental and resource policies
* Forest and resource industries as a driver for closing the regional knowledge gaps and re-engaging rural workforces in education and knowledge-based jobs
* Innovation in forest and nature based SMEs for enhanced rural development

### Knowledge transfer, communicating forest science and the science-policy interface.

* Analysis of stakeholders involved in forest research and its utilization in forest management practices and forest policy
* Communicating forest sciences, and how can it be made more effective for specific goals
* Developing science policy interface
* ‘Weighting’ of science including analysis of the scientific basis of policy-decisions at national and/or EU level, analysis of factors that lead to a diminishing influence of science vis-à-vis other sources, etc.