

IMPLEMENTING THE VISION OF SUSTAINABLE FORESTRY THROUGH INTEGRATED FOREST MANAGEMENT?

- EU forest-relevant policy processes (inter alia EU forest strategy, rural development policy, Natura 2000, bioenergy policy, discussions on a Legally Binding Agreement on Forests in Europe) have stressed the inevitability and aim of reinforcing multifunctional and sustainable forest management in Europe.
- The 300-year-old vision of sustainable forest management is constantly advancing under the challenges of changing societal demands and environment change.
- There is incoherence in objectives and instruments within and between EU and national forest related policies and forest land-use practices.
- There is a need to discuss and balance competing forest land uses and multiple societal demands on forest ecosystem goods and services at the landscape level in Europe.
- Integrated forest management can serve as a proactive and forward-looking participatory policy and management approach to reinforce and implement sustainable forest management.
- Integrated forest management involves forest owners, forest managers, relevant decision-makers, and stakeholder groups at the landscape level. Mutual policy learning and transparent policy instrument mixes are key mechanisms in addressing and managing tradeoffs in forest land-use.

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INTEGRAL KEY FACTS:

Project Title: INTEGRAL (Future-oriented integrated management of European forest landscapes)

Project duration: 01.11.2011 – 31.10.2015

Funding scheme: EU FP7 Seventh Framework Programme

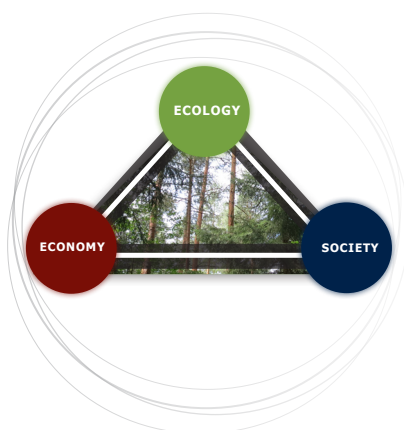
INTEGRAL PROVIDES SOLUTIONS FOR:

- Effective management strategies at the landscape level
- Decision support tools for future-oriented and integrated forest management
- Coherent EU policy instruments

The main objective of the four-year project INTEGRAL is to bring the landscape dimension closer to Europe. At the same time, the project provides demand-driven information for European policy decision makers on the challenges in forest management in 20 regions throughout Europe.

1. SUSTAINABLE FOREST MANAGEMENT: STATE OF PLAY

SUSTAINABLE FOREST MANAGEMENT



The concept of “sustainable forest management” has been broadly established in Europe, indicating a belief in the possibility of maintaining a well-balanced relationship between people and their natural environment. In forestry law and management planning, the paradigm of “sustainable timber production” has been maintained but gradually broadened over the past decades, and now refers to the concept of “multifunctional forestry,” which should provide sustainable supplies of a multitude of forest goods and services (Wiersum, 1995; Winkel et al., 2011).

“Multifunctional forestry” should not be seen as a concept of harmony. It is not by itself capable of simultaneously providing all forest functions and resolving all societal tensions (Glück & Pleschberger 1982; Glück 1987; Schanz 1996; Volz 2002; Suda 2005). Similarly, the policy paradigms of “ecosystem approach” and “ecosystem management” have not yet led to sufficiently concrete integrative ways and means to balance diverse societal demands regarding conservation and sustainable use of forest ecosystems. These concepts have created positive awareness of the need to protect nature and integrate environmental concerns into forest-related land-use policies and practices (UNEP 2006; MCPFE 2007). Still, conservation policy-making and practice, especially when focused on strictly protected areas and conservation biology, hardly offer ways to reconcile nature conservation and economic development (Ostrom 2007; Adams & Jeanrenaud 2008).

2. SOCIOECONOMIC AND POLICY DEVELOPMENTS INFLUENCING FOREST MANAGEMENT AT THE LANDSCAPE LEVEL IN EUROPE

The in-depth analyses of the INTEGRAL project’s (FP7, 2011-2015) first research phase confirm that the integration of conservation in sustainable-use of forests remains a challenging task for forest policy-makers, owners, managers, and stakeholder groups in Europe. This is especially relevant at the landscape level, where the provision of diverse forest ecosystem goods and services must be balanced against the challenges arising from the intersection of forest management practices, incoherent policies, competing societal demands, market forces, and environmental changes such as climate change. Based on more than 400 interviews with experts, forest owners, forest managers, and various stakeholders, as well as the analysis of hundreds of documents (e.g., statistics, legislation, policy papers, and scientific reports), a policy and socioeconomic analysis was conducted between May-2012 and April 2013. In parallel, research based on decision support systems and ecological modeling analyzed management aspects of European forested landscapes. The key findings from the interdisciplinary INTEGRAL research, based on 20 landscape case studies in 10 European countries¹ and EU level studies, are summarized in the following²:

¹ Bulgaria, France, Germany, Ireland, Italy, Lithuania, the Netherlands, Portugal, Sweden, Slovakia


² For a detailed account on the research results of the INTEGRAL project please refer to the project publications on www.integral-project.eu

‘FORESTED LANDSCAPE’

CAN BE DEFINED AS A SOCIAL-ECOLOGICAL SYSTEM WHICH IS CHARACTERIZED BY A DISTINCT AREA, WHOSE EVOLVING FEATURES, AS PERCEIVED BY PEOPLE, ARE THE RESULT OF THE ACTION AND INTERACTION OF ECOLOGICAL (BIO-PHYSICAL) AND/OR HUMAN (POLICY AND SOCIO-ECONOMIC) FACTORS (CF. EUROPEAN LANDSCAPE CONVENTION 2000).

Demographic developments play a significant role in many of the studied landscapes. The ageing and urbanisation of the general population and forest owners are noted in most countries, particularly in rural areas. Ageing of the population and rural depopulation could lead to abandonment of land, causing a significant expansion of forests and build-up of deadwood, as well as a heightened risk of forest fires, particularly in Southern Europe. Forests have been increasingly used for recreation and tourism in areas with growing populations and levels of urbanisation; the increasingly urbanised population does not appreciate the role of forests in timber production, and is expected to demand more nature-oriented forestry for recreational and landscape amenity values. The decline and ageing of the population has led to a decreased availability of skilled forestry workers and an increase in labour costs.

DEMOGRAPHIC DEVELOPMENTS



Across all case study countries, **public opinion** considered rural areas and forests highly important for recreation, nature protection, and wood production. The sustainable forest management **discourse** has been highlighted across most case studies. Despite the dominance of the sustainable forest management discourse, many case studies have identified a controversy between forest protection and production discourses, which is in turn inconsistent with the harmonizing discourse of sustainable and multifunctional forest management.

PUBLIC OPINION



Regarding **economic and technological developments**, the sawmill industry experienced a considerable concentration and the number of sawmills has steadily declined, but the total amount of processed wood has not. The pulp and paper industry has also experienced considerable consolidation and a technological rationalization with corresponding reductions in the number of production units and, at the same time, increased commodity production overall.

Over the past few decades, high-technology machines such as harvesters and forwarders have influenced forest management and substituted manual methods in executing forestry works in rural landscapes. Gross tree harvesting rates are trending upward, nearing the annual increment in many case study areas. Timber prices have been increasing in the majority of the surveyed case study areas, and the building sector has been the most significant market for timber resources. The rapidly increasing bioenergy sector, coupled by a significant rise in the price of fossil fuels, has doubled energy wood consumption. Timber supplies for material use (e.g., round wood, industrial wood) have retained their relevance, especially for publicly owned and large forest areas, whereas private and small owners were more inclined to consider energy wood production.

ECONOMIC AND TECHNOLOGICAL DEVELOPMENTS



Local economic structures have decreased in importance, while trans-regional forest users' structures, connections, and economic networks have increased in importance. Forest owners' associations are able to play a relevant role in wood mobilisation processes and the economic development of private forestry. In general, the competition between material and energy uses of wood has been increasing and big transnational forest-based and bioenergy companies put local sawmills and forest enterprises under high pressure. The recent global financial and economic crisis has severely impacted forestry and local forest product markets by decreasing commodity demand and prices. Concerns have also been expressed about the possibility that reduction of public expenditure will result in higher pressure on forests, such as when incomes from timber sales provide financial stability for rural communities, or when wood fuel demands require higher forest use. Moreover, EU subsidies have been a relevant factor influencing forest landscape management choices about afforestation, intensively used forest plantations, the construction of forest roads, and increases in wood mobilization.

Considering the **actors and their networks** within the landscapes under survey, a collaborative relationship network exists within a strong coalition of private

ACTORS AND NETWORKS

and corporate forest owners, forest managers, forest enterprises, and forest administrations. No or rather uncooperative relationships exist between the traditional forestry sector and other actors such as environmental NGOs and/or park, environmental, and agricultural administrative bodies.

The investigation of actors' **political resources** indicate that state forest agencies, based on formal authority, are perceived as the most powerful in forest management, followed by forest owners and nature protection administration. Although forest managers experience a high degree of autonomy, the findings show that they feel most constrained by governmental regulatory policy and law, as well as by markets that often fail to guarantee 'good' prices and 'honest' competition.

The results of the analysis illustrate that active forest management takes place in most landscapes for both timber and wood fuel production as primary ecosystem goods and services. About half of the case study areas have an active management for biodiversity, mainly provided by state forestry organizations. Multifunctional forestry is perceived as an important principle in forest management in the majority of landscape case studies. In countries where multifunctional forestry does not play a role, spatial segregation of forest land-uses prevails. Where multifunctional forestry does play a role, both spatial integration and segregation of forest land-uses is evident; in some cases, integrated provision of different forest ecosystem goods and services is considered impossible, suboptimal, or a cause of conflicts that should be avoided.

Forest owners and forest managers with different preferences and socioeconomic characteristics can be identified in all case study areas. One can find forest owners that are primarily interested in the economic aspects of forestry and others that aim at less intensive, "close-to-nature" or "ecological" forest management. Other forest owners and forest managers put more focus on recreational aspects.

On a broader EU level, forest ownership varies from many very small and fragmented private-owned to large scale state-owned forests, and from small family owned holdings to large estates owned by private companies. The environmental services of forests (e.g., conservation, protection) are perceived as being more significant and more widely acknowledged by the general public than the economic ones. Over the past decades, production in EU forest-based industries grew fairly steadily, although at a considerably slower rate than overall production as a share of GDP. The biggest shifts in forest commodity production and consumption occurred after 1990, in association with the transformation in Central and Eastern Europe and the economic rise of China. The growing competition for wood as a raw material and as bio-energy has accelerated the development of enabling technologies and supply shifts that enable diversification of input materials for processing within EU forest-based industry.

ECONOMIC DEVELOPMENTS AND THE EUROPEAN FOREST-BASED SECTOR

While EU member states have a long history of specific **national and sub-national policies and laws** regulating forest use and protection, there have been initiatives for a more coordinated EU forest policy through the EU Forestry Strategy (1998) and the EU Forest Action Plan (2005) based on the principles of sustainable forest management, the multifunctional role of forests, and subsidiarity. Aside from the legally non-binding EU forest policy, there are several established EU policies that also deal with the sustainable use and conservation of forests (e.g., Rural development regulation, Habitats and Birds directives, EU timber regulation, Renewable energy directive, Biomass Action Plan). This results in a **fragmented European forest policy regime**. Furthermore, in the year 2011 the Forest Europe process (former MCPFE), which has developed pan-European legally non-binding guidelines, criteria, and indicators for sustainable forest management since 1993, has nearly

finalised the text of a European Forest Convention covering all EU Member States plus other European countries, including Russia. The different policy objectives and instruments are partly incoherent, both within the specific EU forest policy itself, and between the different EU forest-related policies.

The EU is a leading global producer and consumer, and also a key player in international forest politics. As a result, decisions about land-use, production and consumption, and forest governance within EU countries leave a significant “global footprint” on land, natural resources, climate, governance, and human welfare elsewhere. These external footprints, in turn, impact EU countries in terms of the overall sustainability and security of their energy, food, and resource use, and their place within the geopolitical world order. Core EU and global policy instruments of relevance to **global forest footprints** vary in their emphasis across the dimensions of sustainability; they apply different perspectives on global pathways to sustainability by either promoting environmental strategies focused on facilitating and standardizing global trade, or reducing consumption and promoting local benefit capture and a more equitable distribution of global resources.

EUROPEAN FOREST POLICY REGIME

3. FOREST LAND-USE TRADEOFFS AND SYNERGIES IN EUROPEAN LANDSCAPES

From the research results, the following key findings can be derived:

- While there is much diversity among landscape areas in terms of ecological conditions, there are several common forest management issues across all countries and regions. The research finds similar policy and socioeconomic challenges and forest land-use tradeoffs pointing to the need to discuss and balance different societal demands toward diverse forest ecosystem goods and services (see Table 1).
- Most important is balancing the competing land use interests of the material use of timber on the one hand, and biodiversity conservation, use of wood for bioenergy, and recreation on the other. In certain localities, demands by agriculture, water management, carbon sequestration, and human infrastructure must also be discussed and balanced with forest management.
- Institutional and policy changes in forestry take place in both old and new EU member states. Along with subsidies and market incentives, they are the most important factors influencing sustainable use and conservation of forests.
- Although some forest owners and managers cooperate with environmental authorities and NGOs on some issues, conflicts between forestry and nature protection groups prevail in most of the European countries.
- Local and transnational forestry enterprises compete very often for the use of the same forest resources, especially those open to transnational forest commodity markets and trade.

CHALLENGES OF SUSTAINABLE FOREST MANAGEMENT



	ECONOMIC	ECOLOGICAL	SOCIAL
ECONOMIC	Timber use vs. energy wood use (FR, GER, IRL, IT, LT) Timber use vs. wind energy (IRL) Timber use vs. land-use change for construction of infrastructure (GER, SE) Afforestations vs. agriculture (LT) Timber use vs. mining (SE)	Timber use vs. biodiversity conservation (BG, GER, IRL, IT, NL, PT, SE, SK) Afforestation vs. native species/landscape conservation (IRL) Energy wood use vs. biodiversity conservation (IT) Timber use vs. wildlife management (BG, SE) Timber use vs. carbon sequestration (PT) Timber use vs. climate change adaptation (FR, PT)	Timber use vs. recreation (GER, IRL, IT, LT, PT) Forest roads/timber use vs. water protection (BG, GER, IRL, SE) Timber use vs. mushroom foray (IT) Timber use vs. traditional use by Sami people (SE)
ECOLOGICAL		no data available	Biodiversity conservation vs. recreation (LT, NL) Biodiversity conservation vs. people's safety (NL)
SOCIAL			no data available

Table 1: Competing societal demands on forest ecosystem goods and services in 20 forested landscapes across Europe³

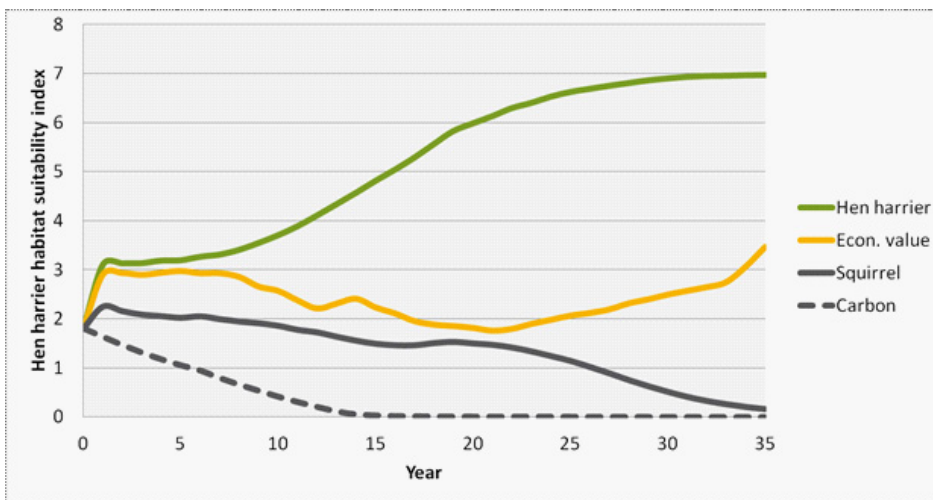
- Some of the countries are prone to specific challenges, such as forest fires in Southern and Eastern Europe, or storms in Central and Northern Europe. While it is thought that these problems are caused primarily by climate change, forest management trade-offs do not help settle the debate.
- Many of the forest goods and services of interest to stakeholders can only be assessed on the landscape level. The balancing of interests is therefore a landscape management problem.
- Forest modeling research confirms that important trade-offs and synergies between different forest goods and services exist in all landscapes. A recurrent theme is that more intensive wood production tends to reduce biodiversity in landscapes. However, there are also examples of timber production and nature conservation as complementary processes (see an example from Ireland in the Figure 1).

Forest modeling research has investigated the potential of forest goods and services in each case study area. For example, take the effect of different forest management strategies on the area suitable for hen harrier (*Circus cyaneus*) in Ireland (Figure 1). Strategies include the maximization of, respectively, hen harrier habitats (Hen harrier), value of timber production (Econ. value), red squirrel habitats (Squirrel), and carbon sequestration (Carbon). The Figure shows, among other things, that maximizing timber values tends to increase

³ Abbr.: BG=Bulgaria, FR=France, GER=Germany, IRL=Ireland, IT=Italy, LT=Lithuania, NL=The Netherlands, PT=Portugal, SE=Sweden, SK=Slovakia

the hen harrier habitats over the subsequent 10-15 years, whereas a management strategy maximizing the carbon sequestration capacity of forested land eliminates the habitats over the same period. This is because carbon sequestration maximization increases volumes whereas the hen harrier has a preference for young forests before the canopy closes.

Figure 1: The habitat suitability for hen harriers (*Circus cyaneus*) under different forest management strategies during a projected 35 year period for the Western Peatland case study area, Ireland



4. INTEGRATED FOREST MANAGEMENT: A PROMISING POLICY AND MANAGEMENT APPROACH FOR IMPLEMENTING SUSTAINABLE AND MULTIFUNCTIONAL FORESTRY?

Academic literature and past practice on the topic of forest management has revealed that there is a discrepancy between the awareness of and actions aimed at sustainable use and conservation of forest ecosystems in Europe. The aforementioned policy and socioeconomic developments reflect the pressing need for policy and management responses to manage the multiple societal demands of current and future generations for diverse forest goods and services. In the current situation, with increasing societal trade-offs about different forest ecosystem goods and services, it is important to recognize that diverse forest land-uses have to be discussed and managed.

The INTEGRAL project is developing and testing the promises and pitfalls of a new governance approach of **integrated management of European forest landscapes** based on more proactive and comprehensive consideration of tradeoffs and synergies between environmental, socioeconomic, and political aspects in time and space. **Integrated forest management** can be understood as a **socio-ecological system of human-environmental interactions** among a set of factors: (i.) dynamic forest ecosystems exposed to changing environmental conditions, (ii.) forest governance and management (e.g., forest-related policies and institutions, markets for forest goods and services, actors' preferences, management strategies), and (iii.) broader system-wide factors such as economic and demographic developments, technological innovations, public opinion, and cultural and political changes.

There are two aspects of integrated forest management: (i.) the discussing and balancing of competing societal demands on landscape level forest ecosystem goods and services within forestry (e.g., production of construction timber vs.

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INTEGRATED FOREST MANAGEMENT STRATEGIES

wood energy; forestry vs. conservation of forest habitats and species) and between forestry and other land-uses (e.g., forestry vs. agriculture, recreation, infrastructure); and (ii.) the translation of this into forest-relevant planning and management strategies.

From a solutions oriented perspective, one can conceive of integrated forest management as a process of **systemic thinking**, where multiple influencing factors (e.g., societal demands, socioeconomic developments, and institutional and policy changes) and their impacts are taken into account. The diverse dynamics and impacts are incorporated into forest policy-making at the strategic level, as well as into decisions on sustainable use and conservation of forests at the operational level.

In practical terms, integrated forest management could be achieved by **segregative and integrative forest management strategies** at the landscape level and/or the level of individual forest ownership. While segregative strategies rely on spatial differentiation and prioritization among single-product zones of different forest land-uses (e.g., monocultures for commercial timber production next to reserves for forest biodiversity conservation next to recreational forests), the integrative approach seeks to find a balanced provision of the most relevant forest ecosystem goods and services at each forest management unit across the whole landscape.

While concepts such as “sustainable forest management,” “multifunctional forestry,” or “ecosystem approach” seem similar to “integrated forest management,” the latter could be an approach to implement the former. The key features of integrated forest management can be summarized by assuming that this policy and management approach

- connects **long-term and short-term thinking** in forest governance processes;
- brings **interested parties** (e.g., forestry, nature protection, recreation) and their different perspectives and issues at stake together to stimulate joint actions;
- promotes societal coordination by **participatory forward-looking** that helps involved actors develop a common understanding of present and future challenges and opportunities;
- encourages **mutual policy learning** by communicative actions that can gradually form a broader network and stimulate co-operation among actors and thereby overcome previous societal tensions;
- identifies and explicitly communicates central **points of concern and trade-offs** so that they can be appropriately managed and accommodated;
- stimulates the development of coherent policy and economic frameworks that address different forest-related policies and management practices and integrate sustainable use and conservation of forests in a coordinated way through different **policy instruments** (e.g., subsidies, information, performance standards, etc.) and **market incentives**.

KEY FEATURES OF INTEGRATED FOREST MANAGEMENT

For a successful introduction of an integrated forest governance process, INTEGRAL recommends connecting the participatory decision-making processes on the sub-national level of landscapes to forest-relevant policy-making processes on national and European levels, and vice versa. Designing an innovative model of integrated **multi-level forest governance** can be expected to activate policy learning and the explicit management of trade-offs from the bottom of sub-national landscape levels, up to the national and European levels.

5. REFERENCES

- Adams, W. M.; Jeanreneaud, S. (2008): Transition to Sustainability: Towards a Diverse and Humane World. IUCN, Gland, Switzerland.
- Glück, P. (1987): Das Wertesystem der Forstleute. Centralblatt für das gesamte Forstwesen 104(1), 44-51.
- Glück, P.; Pleschberger, W. (1982): Das Harmoniedenken in der Forstpolitik. Allgemeine Forstzeitschrift 37, 22, 650-655.
- MCPFE (Ministerial Conference for the Protection of the Forests in Europe) (2007): State of Europe's Forests 2007. MCPFE Report on Sustainable Forest Management in Europe. Jointly prepared by MCPFE Liaison Unit Warsaw, UNECE and FAO. MCPFE Liaison Unit Warsaw, Poland.
- Ostrom, E. (2007): A diagnostic approach for going beyond panaceas. Proceedings of the National Academy of Sciences 104(39), 15181-15187.
- Schanz, H. (1996): Forstliche Nachhaltigkeit. Sozialwissenschaftliche Analyse der Begriffsinhalte und funktionen. Schriften aus dem Institut für Forstökonomie, Universität Freiburg, Band 4, Freiburg.
- Suda, M. (2005): Multifunktionalität oder Interessenvielfalt. Anmerkungen zum Selbst- und Fremdbild der Forstwirtschaft www.europeanforesters.eu/GermanyCongress/Symposium.
- UNEP (2006): UNEP in 2006. http://www.unep.org/pdf/annualreport/UNEP_AR_2006_English.pdf [Accessed 2010-11-15]
- Volz, K.-R. (2002): Die drei Dimensionen der forstlichen Nachhaltigkeit - Oder: wie nachhaltig ist die Forstwirtschaft wirklich? Schr.-R. d. Deutschen Rates für Landespflege. Heft 74, 62-64.
- Wiersum, K. F. (1995): 200 Years of Sustainability in Forestry: Lessons from History. Environmental Management 19 (3), 321-329.
- Winkel, G.; Gleissner, J.; Pistorius, T.; Sotirov, M; Storch, S. (2011): The Sustainably Managed Forest Heats up - Discursive Struggles over Forest Management and Climate Change in Germany. Critical Policy Studies 5(4), 361-390.

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INTEGRAL Policy Brief 1

Leipzig, June 2013

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Photo Credit:

Jördis Winkler

The research leading to these results has received funding from
the European Union Seventh Framework Programme
under grant agreement n° FP7-282887