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European Forest Sector Outlook Study II: Switzerland in the European context

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European Forest Sector Outlook Study II: Switzerland in the European context

The European Forest Sector Outlook Study II (EFSOS II) is the latest in a series of outlook studies by United Nations Economic Commission for Europe (UNECE) and Food and Agriculture Organization of the United Nations (FAO), providing an outlook for the European forest sector for the period 2010–2030. The study is structured around a reference scenario and four policy scenarios, implemented in a set of mathematical models. The paper summarises the methodology and main outcomes for Central Europe, discusses specific Swiss aspects, the usefulness of such outlook results at the national level and possible future improvements. The picture for Switzerland is one broadly characterised by opportunities, facilitated by a favourable starting point with regard to the forest resources and increasing demand in the surrounding countries. However, a preliminary comparison with national supply scenarios reveals some important differences with regard to increment and mortality and thus possibilities for increased supply. The time between successive new studies should therefore be used to update the underlying data sources, make comparisons to national studies and improve understanding of the models, all in close cooperation with the countries.

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Forest sector outlook studies are a major component of the integrated programme of work of the UNECE Timber Committee and the FAO European Forestry Commission. UNECE and FAO analyse structural developments in the forest sector and periodically produce studies of the long-term outlook for supply and demand for wood and the other forest goods and services, to support policy makers and analysts, as well as civil society and private sector decision makers. The European Forest Sector Outlook Study II (EFSOS II) is the latest in a series of studies, which started in 1952, to provide a regular outlook report for the European forest sector. EFSOS II was published in August 2011 (UNECE & FAO 2011). All these studies have aimed to map out possible or likely future developments, on the basis of past trends, as a contribution to evidence-based policy formulation and decision making. This paper summarises the methodology and main outcomes for Central Europe of EFSOS II and discusses the usefulness of such outlook results at the national level and possible future improvements.

Scenarios

EFSOS II is built on the construction and interpretation of what-if scenarios. What-if scenarios do not necessarily give a best estimate of how the future will look like, but provide insight in the consequences of certain actions, events or (policy) choices. The EFSOS II main report includes a Reference scenario and four policy scenarios. The Reference scenario assumes current trends to continue, without any major policy changes, and serves as a comparison base for the policy scenarios. The four policy scenarios are

- Maximising biomass carbon;
- Promoting wood energy;
- Priority to biodiversity;
- Fostering innovation and competitiveness.

The Maximising biomass carbon scenario explored how much more carbon could be sequestered by European forests, without reducing the annual harvest of stemwood for products and energy, and without expanding the area of forest. In the Promot-

ing wood energy scenario, absolute priority is attached to meeting the official targets for renewable energy. The Priority to biodiversity scenario assumes a significant increase in area of forest protected for biodiversity conservation (in the whole of Europe, excluding Russia, 6.2 million ha more than in the Reference scenario) and several measures intended to promote biodiversity in forests available for wood supply: no extraction at all of harvest residues or stumps, longer rotations and more mixed stands. Demand for wood (for products and energy) is assumed to remain unchanged from the Reference scenario, as are the non-forest components of wood supply (such as recycled wood, wood from landscape maintenance, industry residues). The Fostering innovation and competitiveness scenario assumes that the forest sector would become considerably more innovative than at present, under the influence of framework conditions transformed by policy measures and the attitudes of actors in the sector. This scenario is only qualitatively described for Europe as a whole and not further discussed here.

Methods

For the scenario analysis in EFSOS II, a range of models was selected to cover the whole forest sector. Selection criteria used were robustness; transparency; ability to provide analysis at the country level within Europe; being based on validated data sets; and, the ability to address the stated policy challenges. The following approaches were used in EFSOS II:

Econometric projections of production and consumption of forest products

Projections based on econometric analysis use observed relationships between economic development, expressed as Gross Domestic Production (GDP), and activity in the forest sector to project future activity, based on assumptions regarding future economic growth (Jonsson 2012). It provides country specific projections of consumption, production and trade of forest products. At present, wood energy cannot be covered by econometric analysis due to the short historical time series available.

Wood Resource Balance

The Wood Resource Balance (WRB) is a tool to map the supply and use of all woody biomass streams for a given spatial unit (Mantau et al 2010). The left-hand side of the balance contains all sources of woody biomass, of both primary and secondary origin. The right-hand side of the balance shows all uses of woody biomass. The WRB can be used to show the real woody biomass balance for a given year, or it can be used to show discrepancies between potential future supply and expected future demand.

European Forest Information Scenario model

The European Forest Information Scenario model (EFISCEN) is a large-scale forest resource assessment model (Schelhaas et al 2007). It applies to even-aged, managed forests. Results for uneven-aged forests, unmanaged forests and shelterwood systems are less reliable, but are included when needed to simulate the forest area available for wood supply (FAWS). EFISCEN projects the future state of the forest under assumptions of future wood demand and under a given management regime (rotation lengths, residue removals). The model is set up using aggregated forest inventory data, usually obtained from national forest inventory institutes.

The Global Forest Sector Model

The Global Forest Sector Model (EFI-GTM) is a partial equilibrium model, focusing on forest products (Kallio et al 2004). It makes projections of global consumption, production and trade of forest products, in response to assumed changes in external factors such as: economic growth; energy prices; trade regulations; transport costs; exchange rates; availability of forest resources; and consumer preferences. The model calculates periodical investments in production capacity of forest industry for each region. In each period, the producers are assumed to maximise their profits, while consumers are assumed to maximise their surplus.

			2010	2030		2030	
				Reference scenario		Promoting wood energy scenario	
Paper	Consumption	1000 metric tons	56.3	60.6	7.6%	64.2	14.0%
	Production	1000 metric tons	53.0	61.9	16.8%	60.9	14.9%
Wood panels	Consumption	1000 m³	35.5	37.6	6.0%	37.1	4.7%
	Production	1000 m³	32.0	35.2	10.1%	31.8	–0.4%
Sawnwood	Consumption	1000 m³	60.5	61.8	2.2%	61.4	1.6%
	Production	1000 m³	50.2	48.3	–3.7%	47.3	–5.7%
Wood-based energy	Consumption	1000 m³ RWE	138.8	186.9	34.7%	375.2	170.4%
	Production	1000 m³ RWE	143.7	181.6	26.4%	267.7	86.3%

Tab 1 *Production and consumption of major wood product categories for Central-West Europe under the Reference scenario and Promoting wood energy scenario. Results generated by the EFI-GTM model. RWE = roundwood equivalents.*

		2010	2030 Reference scenario	2030 Promoting wood energy scenario
Paper	USD/ton	536	619	626
Wood panels	USD/m³	202	256	265
Sawnwood	USD/m³	178	193	199
Sawlogs coniferous	USD/m³	73	96	107
Sawlogs non-coniferous	USD/m³	75	140	142
Pulpwood	USD/m³	54	81	98

Tab 2 *Prices of wood and products for Central-West Europe under the Reference scenario and Promoting wood energy scenario. Results generated by the EFI-GTM model.*

Linkage of models

Each of the methods listed above has its specific strengths and weaknesses. The general framework for linking the models is designed to take full advantage of the strengths of the components and to limit dependency on the weaker parts. The methodological core of the EFSOS II study is the WRB. In a first step, the future development of the four different sections of the WRB was projected separately, without taking into account possible (market) interactions between them. Demand for material uses was derived from the econometric analysis driven by the scenario assumptions on future GDP development. Demand for woody biomass for energy was calculated by taking existing trends or future policy targets into account. The potential wood supply from the forest was derived from the EFISCEN model, using scenario-specific assumptions on availability of forest resources and management regimes. The potentials for wood supply from sources outside the forest were taken from the EUwood study (Mantau et al 2010). This first step gives a broad idea of whether potential available resources are sufficient to satisfy expected future demand. However, it does not indicate which resources are preferentially used, and how a possible discrepancy between expected demand and potential supply could be solved. Therefore, in the second step EFI-GTM was applied to see how possible imbalances would be "solved" by the market. Based on the projected "real" demand for stemwood and harvest residues, EFISCEN then projected consequences for the development of forest resources and related indicators. Not all scenarios employ the general framework fully. Assumptions in some scenarios affect only parts of the framework, while, in some other cases, not enough resources were available to cover all parts.

EFSOS II results for Central-West Europe

All EFSOS II models produce results at the national level, which are available from the UNECE website[1]. The main report of the EFSOS II study (UNECE & FAO 2011) presents aggregated results for Europe as a whole and for 5 sub-regions. Switzerland is located in the region Central-West Europe, which further includes Ireland, United Kingdom, Netherlands, Belgium, Luxemburg, France, Germany and Austria. Detailed Swiss results were discussed during the "Waldökonomisches Seminar 2012"[2], held on 1 and 2 October 2012 in Switzerland. Based on these discussions we only present here the aggregated results for the region Central-West Europe and discuss national issues in a more qualitative way.

Production and consumption

The Reference scenario is based on the GDP and population data from the B2 scenario of the Intergovernmental Panel on Climate Change (Nakicenovic & Swart 2000). The GDP in Central-West Europe is projected to increase by 24% over the period 2010–2030. As a consequence, consumption of wood-based products increases slightly, by 2–8% in these 20 years (Table 1). The consumption of wood-based energy was projected to increase by 35%. The production of paper and panels was projected to increase by 10–17%, while production of sawnwood was projected to decrease by 4%. In the Promoting wood energy scenario, absolute priority is attached to meeting the official targets for renewable energy in EU countries. In non-EU countries, comparable targets are used if available. As a result, the consumption of wood-based energy was projected to increase by 170% between 2010 and 2030. This is about double the amount as projected for the Reference scenario for 2030. The consumption of wood-based products was projected to decrease only slightly in comparison with the Reference scenario, except for paper which even increased. Production of all product categories was projected to decrease compared to the Reference scenario, especially the production of wood-based panels. The assumption of the Maximising biomass carbon scenario is that supply from the forest does not change, so production and consumption are the same as the Reference scenario. Due to limited resources available, the Promoting biodiversity scenario has not been addressed by the EFI-GTM model and results for this scenario are thus not available.

Prices

Prices of wood and wood products were projected to increase under both the Reference scenario and the Promoting wood energy scenario as a consequence of increased demand (Table 2). Wood product prices were somewhat higher in the Promoting wood energy scenario than in the Reference scenario, but prices of logs increased considerably, a sign of increased competition for resources.

1 www.unece.org/efsos2.html (15.5.2013)
2 www.hafl.bfh.ch/index.php?id=668 (2.7.2013)

	2010	2030 Reference scenario	2030 Promoting wood energy scenario
Harvest	170.4	197.5	206.6
Harvest residues	26.0	38.8	88.2
Landscape care wood	14.5	18.5	24.7
Post-consumer wood	24.1	30.5	30.5
Industrial residues	62.9	67.3	66.6
Imports	11.4	9.4	115.4

Tab 3 Sources of wood and biomass supply for Central-West Europe under the Reference scenario and Promoting wood energy scenario (million m³ roundwood equivalents). Results generated by the EFI-GTM model and for landscape care wood and post-consumer wood derived from EUwood (Mantau et al 2010).

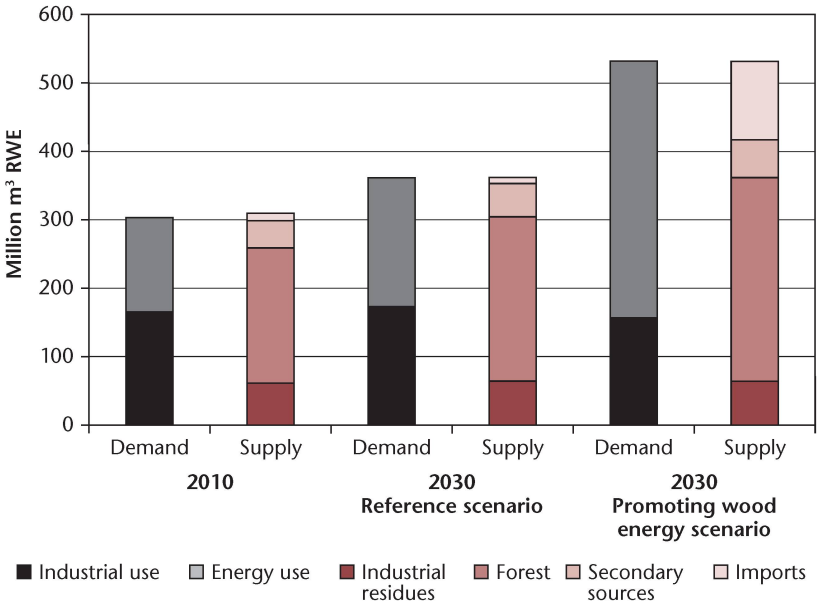

Fig 1 Comparison of components of demand and supply in the Reference scenario and the Promoting wood energy scenario. RWE = roundwood equivalents. "Forest" means the total of harvest and harvest residues, "secondary sources" means the total of landscape care wood and post-consumer wood.

Supply

The increase in production as projected for the Reference scenario can be mostly covered by increased mobilisation of resources, mostly from the forest (Table 3, Figure 1). Harvest was projected to increase by 16% between 2010 and 2030, while residue extraction was projected to increase by 49%. The wood energy targets in the Promoting wood energy scenario required an enormous increase in supply of wood by 2030. Assuming major investments in technology, legislation and organisation of residue removal, residue removal was projected to increase by 239% in 2030. This resulted in the annual removal of 88 million m³ roundwood equivalents (RWE), contributing almost 50 million m³ RWE additionally as compared to the Reference scenario to the wood energy targets. Wood harvest and mobilisation of biomass from maintenance of landscape elements was assumed to contribute 9 and 6 million m³ RWE, respectively. Despite increased mobilisation of resources, a major part of the extra demand was projected to be covered by wood imports. Imports into Central-West Europe were rather small in the Reference scenario (9 million m³ RWE in 2030), but increased to 115 million m³ RWE in 2030 under the Promoting wood energy scenario. Imports are only partly in the form of roundwood, but consist mostly of wood-based energy products (like wood pellets).

The Maximising biomass carbon stock scenario assumed only changes in the forest management and has therefore no effect on the amount of wood harvested and thus not on production and consumption figures. The Priority to biodiversity scenario assumed that 5% of the Forest area available for wood supply (FAWS) was set aside in 2010, rotations were increased by 10 years for short-living species and 20 years for long-living species, and that removals of harvest residues were no longer allowed. This caused a projected decrease in harvest level by about 20 million m³ roundwood in 2030 as compared to the Reference scenario, and a projected decrease in harvest residue removal of nearly 38.8 million m³ RWE. This reduction in availability of woody biomass would most likely lead to a decrease in production, increased prices and higher import and lower export quantities. Effects on total consumption are uncertain. However, no further quantifications are available since this scenario was not quantified by EFI-GTM due to restricted resources available.

Forest resources

The total forest area in Central-West Europe is assumed to increase from 43.5 million ha in 2010 to 45.2 million ha in 2030, based on the extrapolation of current national trends as extracted from Forest Europe et al (2011) for the period 1990–2010. The forest area available for wood supply (FAWS) is assumed to increase slightly from 34.1 million ha in 2010 to 35 million ha in 2030. As a consequence of the assumptions in the Priority to biodiversity scenario the FAWS was assumed in that scenario to increase from 32.4 million ha to 33.3 in 2030. Note that all per ha values refer to FAWS, and thus for the Priority to biodiversity scenario the area basis is smaller.

The Reference scenario and the Promoting wood energy scenario show very similar developments in most of the variables (Table 4). The main difference is the higher extraction of harvest residues and stumps in the latter, with some consequences for the soil carbon stock. The Maximising biomass carbon scenario and the Priority to biodiversity scenario are similar with respect to development of average growing stock and average felling level. A major feature of the Priority to biodiversity scenario is the reduction in forest area available for wood supply, leading to lower total fellings than the

other scenarios. Another major difference is the absence of residue extraction. The Maximising biomass carbon scenario projected the highest increment rates, a logical consequence of the aim to increase the carbon stored in biomass. All scenarios share a further increase of average growing stock, from 250 m³/ha in 2010 to 279–320 m³/ha in 2030, depending on the scenario. Gross annual increment was projected to remain high (8.6–10.9 m³/[ha × yr]) with a rather stable felling level of 7 m³/(ha × yr).

Switzerland compared to Central-West Europe

In many aspects, simulated developments in Switzerland are similar to those of Central-West Europe and the EFSOS II region as a whole. Important differences originate from the fact that Switzerland is not a member of the European Union, and that Switzerland has more forest resources than Central-West Europe, in relative terms. The Promoting wood energy scenario showed for Central-West Europe as a whole a very high increase (170% as compared to 2010) in biomass consumption for wood-based energy, driven by EU targets. The corresponding increase in Switzerland was only 49%.

The production of wood-based panels was projected by EFI-GTM to increase much more in Switzerland (43%) than in Central-West Europe as a whole (10%) for the Reference scenario, and was projected to be not affected by increased competition in the Promoting wood energy scenario (respectively 43% and 0%). Similarly, production of sawnwood was projected to increase in Switzerland in both scenarios (Figure 2) while it was projected to decrease in Central-West Europe as a whole, with even higher production in Switzerland for the Promoting wood energy scenario than in the Reference scenario. In 2010, log prices in Switzerland are mostly higher than in Central-West Europe and Europe as a whole. In the projections for 2030, this is reversed in both the Reference scenario and the Promoting wood energy scenario. The sharply increasing wood energy demand in surrounding countries drives the prices up, while Switzerland can profit from relatively lower domestic targets, increased prices and availability of resources. As a consequence, Switzerland was projected to change from being more or less self-sustaining in 2010 to be a modest net exporter of wood and wood products in 2030 under both the Reference scenario and especially the Promoting wood energy scenario. This is a large contrast compared to Central-West Europe which was projected to become a major importer in 2030 under the Promoting wood energy scenario.

The extra demand under the Promoting wood energy scenario caused the projected supply from domestic harvest in Central-West Europe to be only a little bit higher (4.6%) in 2030 as compared to the Reference scenario, indicating that the harvest level

			Reference scenario	Maximising biomass carbon scenario	Promoting wood energy scenario	Priority to biodiversity scenario
		2010	2030	2030	2030	2030
Area of forest	million ha	43.5	45.2	45.2	45.2	45.2
FAWS	million ha	34.1	35.0	35.0	35.0	33.3
FNAWS	million ha	9.4	10.2	10.2	10.2	11.9
Growing stock	million m³	8533	9833	11 189	9745	10 597
	m³/ha	250	281	320	279	318
Gross annual increment	million m³/yr	293.9	304.5	381.4	305.7	328.3
	m³ ha/yr	8.6	8.7	10.9	8.7	9.9
Fellings	million m³/yr	217.9	247.1	248.4	253.2	226.1
	m³/(ha × yr)	6.4	7.1	7.1	7.2	6.8
Stemwood removals	million m³/yr	181.5	206.0	207.2	211.2	188.7
	m³/(ha × yr)	5.3	5.9	5.9	6.0	5.7
Extracted residues	Tg dry weight/yr	4.99	13.65	10.97	21.41	0
	Mg dry weight/(ha × yr)	0.15	0.39	0.31	0.61	0
Extracted stumps	Tg dry weight/yr	0	0	0	14.08	0
	Mg dry weight/(ha × yr)	0	0	0	0.40	0
Carbon in biomass	Tg C	3234.6	3695.4	4174.5	3663.9	3917.9
	Mg C/ha	95	106	119	105	118
Carbon in soil	Tg C	3432.1	3488.3	3535.7	3429.6	3370.5
	Mg C/ha	101	100	101	98	101

Tab 4 *Development of key forest resource variables for Central-West Europe. All per ha variables are only for the forest area available for wood supply (FAWS), and thus the area basis in the Priority to biodiversity scenario is lower. Results generated by the EFISCEN model. FNAWS = Forest area non available for wood supply.*

Fig 2 EFSOS II projects higher removals in Switzerland. Photo: Markus Schaller

was already near its maximum. In contrast, the supply from domestic harvest in Switzerland was projected to be 13% higher than under the Reference scenario, indicating there is still scope for an increase in harvest. This is also visible in the Promoting biodiversity scenario, where Switzerland showed no decrease in felling level despite a decrease in forest area available for wood supply.

Despite having one of the highest average growing stocks in Europe, Switzerland still showed higher increase in growing stock than Central-West Europe and Europe as a whole in 3 out of 4 scenarios. Only the Promoting biodiversity scenario showed a lower increase compared to the regions. However, the increase in this scenario is very comparable to the Reference scenario, indicating that more restrictions on forest management to favour biodiversity not necessarily translate in lower fellings and increased growing stocks as elsewhere in Europe. The comparison of increment is similar to that of growing stock: already high but still potential to increase more than the average for Europe.

Comparison with national scenarios

The picture for Switzerland emerging from the analysis above is one broadly characterised by opportunities, facilitated by a favourable starting point with regard to the forest resources (high growing stock, high increment, not very high felling to increment ratio) and increasing demand in the surrounding countries. However, a preliminary comparison with national supply scenarios (Hofer et al 2011) reveals some important differences with the projections of the EFISCEN model within the EFSOS II study. These national scenarios are developed using the MASSIMO 3 model (Kaufmann 2011), which is an empirical model based on the data collected in the Swiss national forest inventories. These four scenarios aimed respectively at maintaining current standing stocks, increasing long-term increment, increasing carbon stock in the forest and increased wood harvest in the coming 20 years. Simulated gross annual increment rates around 2010 are rather well in range, but by 2030 the simulated increment rates by EFISCEN are about 2 $m^3/(ha \times yr)$ higher than in Hofer et al (2011). At least half of the difference is due to the fact that climate change effects on the increment are taken into account in EFSOS II and not in Hofer et al. Expected effects are particularly large in Alpine regions. Additional uncertainty rises from the fact that the data used to initialise the EFISCEN model were derived from National forest inventory (NFI) 2 (1993–1995), because NFI 3 results were not yet published when the EFSOS II study was initiated. Thus the 2010 situation had to be projected by the model, thereby ignoring important developments in age class distribution, increment and mortality, for example as caused by several severe storms in the region.

EFISCEN clearly underestimates the natural mortality (about 0.65 $m^3/[ha \times yr]$) as compared to Hofer et al (about 1.9 $m^3/[ha \times yr]$). This might be caused by the known difficulties of EFISCEN to simulate uneven-aged forests, but also calls for a more in-depth investigation of growth and development of old forest, and particularly its parameterisation in models like EFISCEN. As a consequence of higher increments and lower mortality rates, average growing stocks reached in the EFISCEN simulations are much higher than in Hofer et al. Both effects lead to much higher potential stemwood removals in EFISCEN/EFSOS II. Country results should therefore be regarded with care.

Discussion

The policy scenarios were selected to cover a very broad range of policy options and might therefore appear rather extreme. However, the wide range of assumptions makes a clear identification of consequences and trade-offs of the selected policy choices possible. This should allow the reader to make an informed guess of the consequences of more intermediate scenarios, possibly combining more than one of the policy issues. All policy scenarios were implemented in all countries in the same way to facilitate maximum comparability. However, the assumptions in these scenarios are not equally realistic in each country. It should be borne in mind that the outcomes of this study are what-if scenarios, and not predictions of what will happen in the future. Furthermore, it should be noted that the Priority to biodiversity scenario lacks a quantification of effects

of reduced availability of resources on production, consumption, trade and prices.

The models as used in EFSOS II were selected for their ability to simulate all European countries, making harmonised scenario projections possible. Clearly, national studies like the one by Hofer et al (2011) have much greater possibilities to take national circumstances and data into account and might therefore be considered to be more accurate. Although part of the differences can be traced back to different assumptions in both studies (for example on forest area development, effect of climate change on increment), the parameterisation of EFSOS models could certainly be improved using the results of such studies. This is not only valid for Switzerland, but for all other countries in the EFSOS region. The time between successive new studies should therefore be used to update the underlying data sources, make comparisons to national studies and improve understanding of the models, all in close cooperation with the countries. Conversely, outcomes of EFSOS II can be used in the individual countries to get an impression on what is going on in neighbouring countries, and how for example international demand might change. Also the scenarios as developed in EFSOS II might be used as inspiration for developing new national scenarios. Future work for the EFSOS team will focus on improving the methodology and linking up with national experts to increase the usability of the results and improve future outputs.

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European Forest Sector Outlook Study II: Die Schweiz im europäischen Kontext

Die European Forest Sector Outlook Study II (EFSOS II) ist die neueste von der UNECE und der FAO erstellte Studie, die für den europäischen Forstsektor einen Ausblick auf den Zeitraum 2010 bis 2030 gibt. Die Studie umfasst ein Referenzszenario und vier Politikszenarien, die mithilfe von mathematischen Modellen implementiert werden. Der Beitrag fasst die verwendete Methodik und die Hauptergebnisse für Zentraleuropa zusammen, setzt sich mit spezifisch schweizerischen Aspekten auseinander und diskutiert die Resultate im Hinblick auf deren Verwendbarkeit auf nationaler Ebene und bezüglich möglicher Verbesserungen an künftigen Studien. Mit Blick auf die forstlichen Ressourcen und die steigende Nachfrage in den benachbarten Ländern lässt sich das von der Schweiz gezeichnete Bild durch eine günstige Ausgangssituation und durch viele Möglichkeiten charakterisieren. Allerdings zeigt ein erster Vergleich mit den nationalen Holzverfügbarkeitsszenarien einige wichtige Unterschiede bezüglich Zuwachs und Mortalität und damit bezüglich Möglichkeiten einer höheren Ressourcenverfügbarkeit. Die Zeit bis zur nächsten Studie sollte daher genutzt werden, in enger Zusammenarbeit mit den beteiligten Ländern die Datengrundlagen zu aktualisieren, Vergleiche mit nationalen Studien durchzuführen und die Modelle weiter zu verbessern.

Etude des perspectives du secteur forestier en Europe II: la Suisse dans le contexte européen

L'étude des perspectives du secteur forestier en Europe II (EFSOS II) est la dernière étude d'une série d'études de perspectives menée par la CEE et la FAO, fournissant les perspectives du secteur forestier européen pour la période 2010 à 2030. Cette étude est structurée d'après un scénario référence et quatre scénarios politiques testés grâce à un ensemble de modèles mathématiques. Cet article résume la méthodologie et les principaux résultats pour l'Europe centrale, examine les aspects spécifiques à la Suisse, ainsi que l'utilité de tels résultats de perspective au niveau national et les futures améliorations possibles. La situation de la Suisse fait partie de celles globalement caractérisées par des opportunités, facilitées par un point de départ favorable, à savoir les ressources forestières et la demande croissante de la part des pays voisins. Cependant, une comparaison préliminaire avec les scénarios d'approvisionnement nationaux révèle d'importantes différences concernant l'accroissement et la mortalité, et donc avec les possibilités d'approvisionnement supplémentaire. Le laps de temps entre les études consécutives à venir devrait donc être utilisé pour la mise à jour des sources de données de base, la comparaison avec des études nationales et l'amélioration de la compréhension des modèles, tout ceci en étroite coopération entre les pays.