

Governance of private forests in Eastern and Central Europe: An analysis of forest harvesting and management rights

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Abstract. A property rights-based approach is proposed in the paper to underline the common characteristics of the forest property rights specification in ten ECE countries, the specific patterns governing the harvesting of timber in private forestry and the role of the forest management planning in determining the content of the property rights. The analysis deals with the private forests of the individuals (non industrial ownership) from ten countries, covering 7.3 million ha and producing yearly some 25 million m³ timber. The study shows that the forest management rights in private forests belong to the State and that the withdrawal rights on timber, yet recognised in the forest management plans, are in reality strongly restricted from an economic viewpoint. The forest management planning is the key instrument of the current forest governance system, based on top-down, hierarchically imposed and enforced set of compulsory rules on timber harvesting. With few exceptions, the forest owners' have little influence in the forest planning and harvesting. The rational and State-lead approach of the private forest management has serious implications not only on the economic content of the property rights, but also on the learning and adaptive capacity of private forestry to cope with current challenges such the climate change, the increased industry needs for wood as raw material, or the marketing of innovative non wood forest products and services. The study highlights that understanding and comparing the regime of the forest ownership require a special analysis of the economic rights attached to each forest attribute; and that the evolution towards more participatory decision-making in the local forest governance can not be accurately assessed in ECE region without a proper understanding of the forest management planning process. **Keywords** forest management planning, private forests, governance, owners' participation, harvesting, Eastern, Central and Baltic Europe, property rights.

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Introduction

The economic analysis of the property rights acknowledges the fact that, due to high transaction costs, many attributes of an asset may be left in the public domain, no matter if the asset belongs to a private or a public ownership entitlement (Barzel 1997). Forest represents an asset with a complex panoply of attributes, producing a variety of goods ranging from public to private goods in economic sense (Glück 2000, 2002; McKean & Ostrom 1995). Many positive forest externalities can barely be priced out and have the statute of a public or common-pool good. For instance, the recreational use of the private land poses a common-pool resource problem, landowners having a limited ability to regulate the visitors' flow and to exclude tourists from consuming the recreational services (Vail & Hultkrantz 2000). At this point, the distinction between the legal rights (rights based on legal entitlements) and the economic rights (what the owners are actually able to capture from the value of his asset, due to the legal constraints and/or de facto practices) is required to understand the

bundle of rights related with the use of the forest resource. The apparent variety of property rights specifications (how much is delineated to the owners from the bundle of rights upon resource) and of the governance systems (how the rules are created to solve the potential conflicts upon conflicting resource uses) depicts the complexity of the resource attributes and of our own capacity to assess the resource attributes (Smith 2002).

Many scholars acknowledge that the definition and the enforcement of the property rights upon a natural resource is a matter of social and political setting in which the property rights are embedded (Kissling-Näf & Bisang 2001, Vatn 2005, Irimie & Essman 2009). The system of law is supposed to define the limits in which individuals are allowed to pursue their interests (Legrand 1999). A number of studies analysed and argued for the participation in forest governance institutions by local forest users as being strongly associated with jointly positive outcomes for forests (Chhatre & Agrawal 2008, Persha et al. 2011). In the context of an international policy trend promoting the dialogue and the participation of the civil society into the governance processes

(Coleman & Perl 1999, Krott 2005, Lawrence 2007, Treib et al. 2007), the topic of the forest owners participation in deciding the rules of the forest management is not well covered in the Eastern and Central Europe (ECE) region. With few exceptions (REC 2010, Weiss et al. 2011) there are no studies comparing the property rights specification and the local governance system of the private forestry in ECE countries. In a more general level, the interrogation on the role of the forest management plan as policy instrument is a recent issue (Brukas & Sallnäs 2012) poorly studied for the private forests. A property rights-based approach is proposed in this paper to underline the common characteristics of the forest property rights specification in ten ECE countries, the specific patterns governing the harvesting of timber in private forestry and the role of the forest management planning in the property rights specification. The consequences in terms of the governance of the forest resource are discussed. Our study focuses on the forest landowners' managements and withdrawal rights of timber as indicators of what the owners really own from the forest resource and of what they can really influence in the forest management.

Forest governance and private forestry in countries in transition

In the past two decades, the main governance changes that happened in the post-socialist countries were related to the reform of the property rights and consequently with the mechanisms for resource allocation (Bouriaud & Schmithüsen 2005, World Bank 2005). Forest sector has had to accommodate with the logic of the market mechanisms and the profit maximization. The need for change in forest sector was driven by factors that were largely exogenous to it (World Bank 2005). Deep institutional changes were undertaken in early 90'ies in some countries or after the year 2000 in some others in order to separate the manage-

ment function, the regulatory function and the control function performed up to then by a single forest agency. After more than two decades of economic and political transformation, the ECE countries share several common features (Table 1), such a relatively high share of the agriculture contribution in the gross domestic product that is correlated with a relatively high share of rural population; rather modest corruption-related scores which means slow progress of the countries towards transparency and accountability of their governments; and a relatively high share of the forests in public ownership that varies from 90% in Macedonia to 40% in Estonia. The situation of the illegal logging, e.g. tree removal in violating the national laws, has improved compared with the period 1990–2000 (Bouriaud 2005), yet some NGOs' reports claim that illegal logging represents still a serious problem in several countries.

In the ten studied countries, the share of private ownership exceeds 40% of the forest area only in Slovakia, Serbia and Latvia. The private forests owned by physical persons (forests owned by families or by individuals, known also as non-industrial private forests) represent between 9.8 and 48% of the forested area (Table 2), which means a relatively smaller share of private ownership on forest land compared with the Western Europe (Schmithüsen & Hirsch 2010). The fragmentation of the private forests in small holdings is also a common characteristic of the private forests, particularly in Bulgaria, Czech Republic, Kosovo, Macedonia and Serbia, where more than 90% of the private forests have less than 10 ha area. Only in Estonia, Latvia and Slovakia the small-size private properties represent less than one third of the private forests. The area of the private forests is expected to slightly increase in the next years following the afforestation of the abandoned agricultural land and the continuation of the process of the privatisation and restitution of the forestland.

Due to the small size of private forests, but

Table 1 Country-level basic economical and forestry data

Indicator	GDP per capita, (US\$, 2005)	Agriculture contrib. to GDP (%) 2010)	Forestry contrib. to GDP (% 2010)	Forest cover (% in total area 2005)	Share of rural population (% in total population 2008)	Corruption index* 2010	Public forests (% 2005)	Illegal logging (% in total removal, 2008)
Country	1	2	3	4	5	6	7	8
Bulgaria	6335	5.00	0.30	33.00	30.00	3.30	86.00	1.00
Czech Republic	18910	1.09	0.60	34.00	26.00	4.40	76.00	0.70
Estonia	14062	3.00	0.90	49.00	31.00	6.40	40.00	0.80
Kosovo	3150	12.00	2.00	42.00	60.00	2.90	57.00	100.00
Latvia	10723	4.00	1.30	47.00	34.00	4.20	54.00	1.00
Macedonia	4434	11.00	0.40	45.00	33.00	3.90	90.00	25.00
Montenegro	6510	9.00	0.00	54.00	40.00	4.00	67.00	5.00
Romania	7539	7.00	0.40	28.00	45.00	3.60	70.00	1.00
Serbia	5270	9.00	0.30	29.00	48.00	3.30	51.00	1.00
Slovakia	16036	4.00	0.40	45.00	43.00	4.00	52.00	1.40

Note. * Corruption index relates to perceptions of the degree of corruption as seen by business people and risk analysts, and ranges between 0 (highly corrupt) and 10 (highly clean)(Transparency International 2010). Corruption is considered to be the misuse of public or entrusted authority for personal gain. Sources for column data: #1 - World Bank (2010); #2 - World Bank (2010), Forest Europe (2011); #3 - Forest Europe (2011, p. 324), for Serbia - REC (2010:41), FAO (2010); #4 - Forest Europe (2011, p. 288); #5 - FAO (2010, p. 220-221); #6 - Transparency International (2010); #7 - FAO (2010, p. 236-237); #8 - REC (2010); Greenpeace (2012); Ecopolis (2012); Ministry of Agriculture and Rural Development of the Slovak Republic (2011); State Forest Service, Latvia (2010); Ministry of Environment, Estonia (2009); ECLO (2009); WWF (2008); USAID (2007).

also due to the self-consumption of wood in the households, the forest land is managed by the owners themselves, concessions or renting of private forests being rather the exception than the rule, e.g. leasing of the forest holdings is practiced in Slovakia. The proportion of firewood harvesting in individual and family forests is substantial, for instance, in Bulgaria (49%), Romania (35%) and Serbia (43%) (Schmithüsen & Hirsch 2010), in Western Balkans (52%) (Glück 2011) while in Kosovo the private owners use practically all the timber cut as firewood (ECLO 2009). The extension services for private forests are under development. A slow, but steadily advancement in creating forest associations is noted (Weiss et al. 2012, Glück 2011, Weiss et al. 2011, Schmithüsen & 202

Hirsch 2010, Milijic et al., 2010), yet one lacks accurate data. The forest agencies (in form of public forest administration, State forest managing structures, State forest service, or the public controlling bodies) still keep a central role in guiding and supervising the private forest management (Weiss et al. 2012, Weiss et al. 2011).

Materials and methods

Theoretical framework

Property rights are defined variously and inconsistently in the economics literature, sometime distinctly different from the meaning

Table 2 Main information on private forests in the analyzed countries

Indicator	Forest area (thousand ha)	Forest area with a FMP* in the total area of private forests (%)	Forest area under private, non-industrial, ownership (thousand ha)	Forest area under private, non-industrial, ownership in the total forests (%)	Private forests smaller than 10 ha (%)	Annual volume harvested from private forests (thousand m ³ , 2010)
Country	1	2	3	4	5	6
Bulgaria	3927.0	100	421.9	10.2	98	2100.0
Czech Republic	2657.0	100	530.0	19.0	95 (estimation)	4183.0 2577.0 (unpublished NFI data)
Estonia	2203.0	69	757.3	34.0	24	360.0
Kosovo	464.8	100	185.9	40.0	90	6000.0 (estimation)
Latvia	3354.0	90	1044.4	46.0	29	153.5
Macedonia	998.0	0	94.0	9.8	95	140.0
Montenegro	467.0	2	244.0	33.0	75	4377.0
Romania	6573.0	70	2079.0	32.0	60	1000.0 (estimation)
Serbia	2713.0	100	1058.4	47.0	98	4588.0
Slovakia	1938.0	100	938.0	48.0	13	

Note. * Forest management plans, simplified forest management plans or equivalent. Sources for column data: #1 - Forest Europe (2011:288); #2 - Forest Europe (2011:63), Schmithüsen and Hirsch (2010:10), for Latvia and Romania were used estimations. #3 to 6 - MAF (2013), Adermann (2012), Andjelic et al. (2012), EEIC (2012), MA (2012), Weiss et al. 2012, Glück (2011), MPSR (2011), UNECE (2011), EAGRI (2010), MMP (2010), Nuhodžić and Ferlin (2010), Schmithüsen & Hirsch (2010), MAFWM (2009), Velichkov et al. (2009), USAID (2007), WWF (2007).

given by legal literature (Cole & Grossman 2002). In the philosophy, the right to own opposes two views: (i) the property is a natural right, therefore the role of the State is to protect and guarantee the exercise of the owner right (Locke 1823), to grant “legitimacy and security to a specific resource or benefit stream” (Vatn 2005); (ii) the property is a socially recognized right, one effect of the social contract, therefore the State should monitor that the property rights are exercised according to the general interest (Rousseau 2008). The theory of the social contract suggests that in exchange of the protection offered by the State, the forest owners would have to respect a range of duties according to the general interest, defined in the forest laws and regulations.

These two views over property rights inspired divergent normative judgments and economic doctrines about property rights and their place in the governance processes. Adopting the Rousseau’ position, our study acknowledges that restricting the forest ownership rights is justified in many aspects, e.g. general public interest on the environmental services that forests perform, the public nature of many forest attributes, or the common-pool problem for some other attributes. Therefore, the rules, e.g. regulations, legislation and procedures, relevant to a certain policy domain (Kiser & Ostrom 1982, Giddens 1984, Ostrom 1999) restrict the right of the owner to harvest the forest resource. Understanding which right is affected by which restriction can be done us-

ing the analytical frame defined by Schlager & Ostrom (1992:250) that differentiates five relevant economic property rights: (i) “the right to access, meaning to enter a defined physical area and enjoy non-subtractive benefits; (ii) the withdrawal right, as to obtain a resource unit or product of a resource system; (iii) the management right, as to regulate internal use patterns and transform the resource; (iv) the exclusion right, as to determine who will have access and withdrawal rights and how those rights may be transferred; (v) the alienation right, as the right to sell or lease management and exclusion rights”.

The study focuses only on the withdrawal and management rights on timber. The first argument relays on the fact that rules establishing how much can be cut, when, where and how and the rules establishing who and how decide about the harvesting have a direct impact on the forest owners’ income. The forest ownership economic benefit is, with few exceptions, mostly derived from the timber harvesting and selling. The remaining three categories of rights (the rights to access, to exclude and to alienate) have only an indirect impact on income. Moreover, the rights to access, to exclude and to alienate were granted without restrictions to the forest owners within the privatisation and restitution process and they are guaranteed through the national civil and penal laws (Bouriaud & Schmithüsen 2005). In contrast, the regulation of management and withdrawal rights is relegated to the specific forest laws and policies, and various restrictions apply (Weiss et al. 2011, Bouriaud & Nichiforel 2010, Bouriaud & Schmithüsen 2005). The second argument of choosing to analyse the withdrawal of the timber is its private nature in the economic sense. The timber is one of the few forest attributes market valued and its specification (identification, measurement of the units, estimation of the flow) does not involve high transaction costs.

Data collection

The authors have assessed the withdrawal and the management rights in applying a set of key-questions from a standardised data protocol collection. The method is specific for a positive law analysis approach: the answers to the key questions were searched in the legal rules prescribed in the main forest law or the forest act of the country, or in the specific regulations dealing with the timber harvesting. To assess the management rights, we have identified who has the authority to regulate the internal use patterns of the forest resource and to transform the forest on long term. To assess the withdrawal rights, we have identified who has the authority to determine how, when, and where harvesting from a resource may occur (Schlager & Ostrom 1992).

A central instrument of the forest management is the forest management plan (FMP), aiming at regulating the extraction of resource units on long term, most generally ten years (Ferlin et al. 2010, Bouriaud 2002, Tittler et al. 2001). The fact that the FMP optimises the future shape of the forests via the spatial and temporal distribution of the timber harvesting is blurring into a certain extent the distinction between the management and the withdrawal rights. To avoid this, the analysis of the management rights has focused on the question whether the forest owner has the power to change or influence the structure or the management of the resource, even in the cases when a compulsory FMP applies. Therefore, the forest owner’ participation in the forest management planning and their capability to determine the management goals are considered reliable indicators of the management rights, while the withdrawal rights were identified at the level of the operational rules, e.g. who does establish the quantity of the timber to be harvested, the age at which a stand can be harvested and who has the authority to select the trees to be cut.

Results

The management rights. In all the countries, only the forests with a FMP can be harvested (Table 3). The Forest management plan, ten-years based or in a form of annual or simplified operational plan is compulsory and it is conditioning the legal exercise of the harvesting rights. In the Latvian and Estonian case the FMP is compulsory only if the forest owner intends to do timber harvesting (what

is conceived as an active forest management). To address the problem of small size forests, the FMP is not compulsory in forests smaller than two ha, respectively 50 ha in Bulgaria and in Czech Republic, or the plans are done on the area covered by a larger administrative unit (Kosovo), irrespective of the ownership situation. In Romania the problem of planning in small size forests is not solved yet. The simplified FMP can be a solution for small-size forests, but this solution was prohibited in the

Table 3 Governance of the forest management rights

	1. Is the forest management plan required for the private forests?	2. What is the degree in which the owner has the right to participate in forest planning?	3. Is the owner able to determine the management goals?
1 Bulgaria	1. The FMP is compulsory for all forests larger than two hectares and the State Executive Forest Agency controls its development and implementation.	2. The owner has the right to participate, yet the process is not lead by the forest owner.	3. The forest owner has little influence in setting up the management goals.
2 Czech Republic	1. The FMP is compulsory in all forests larger than 50 hectares. However, even for forests smaller than 50 hectares the State forest administration can decide to impose a simplified FMP in order to ensure rational forest management.	2. The owner has the right to participate. Forest owner' options should be recorded within the planning, but not necessarily included in FMP.	3. No. The owner can not influence the management goals for his/her forest. They are established in the regulations and then set up in the FMP.
3 Estonia	1. The FMP is compulsory only if owner wants to do active forest management (harvesting). If the owner does not want to harvest timber, the FMP is not required.	2. The owner has the right to participate. The forest inventory and the FMP cannot be done against the forest owner willingness and can not ignore his options.	3. The owner has the possibility to choose the type of forestry works within the limits of Forest Act, Rules of Forest Management and other legislative acts.
4 Kosovo	1. The FMP is compulsory for all forests (10 years based FMP and annual-based operational plans). The plans are done at the level of larger administrative units, e.g. forest area within a municipality.	2. No participation. The local community (municipality) may eventually formulate some observations about the planned cuttings.	3. No. The owner can not influence the management goals for his/her forest.
5 Latvia	1. The FMP is compulsory only if owner wants to do active forest management (harvesting). If the owner does not want to harvest timber, the FMP is not required.	2. The owner has the right to participate. His/her participation is kindly welcome. The owner's option is a priority in planning.	3. The owner has the right to participate in establishing forest management goals. The forest owners can choose the type of the forestry works to be undertaken.

Table 3 (continuation)

	1. Is the forest management plan required for the private forests?	2. What is the degree in which the owner has the right to participate in forest planning?	3. Is the owner able to determine the management goals?
6 Macedonia	1. The FMP is compulsory for all forests. The owner has to cover the expenses of the forest management planning, even in the case of forests with protective functions.	2. No participation. Only for forests in a single patch having more than 100 ha the forest owner's needs may be considered. In this case, the FMP should be adopted with his agreement.	3. Normally no possibility to influence. Only for forests in a single patch larger than 100 ha the forest owner can influence the objective of the FMP.
7 Montenegro	1. The FMP is compulsory for all forests. Forest owners are obliged to have a 10 years based FMP and annual-based operational plans.	2. The owner has the right to participate. The concerned forest owners association should be consulted previously when establishing the FMP.	3. The owner has the right to participate in establishing forest management goals. The competent administrative authority should cooperate with the forest owners in developing the annual operational plans.
8 România	1. FMP is compulsory for all forests. The FMP applies for a period of 10 years.	2. The owner has the right to participate, but their preferences are not recorded, nor considered. The FMP is based on technical prescriptions only.	3. No possibility to influence.
9 Serbia	1. The FMP is compulsory for all forests. The FMP applies for a period of 10 years.	2. The owner has the right to participate. Forest owner's options should be recorded within planning, but not necessarily included in the FMP.	3. The private forest owner does not have the right to choose the type of harvesting that will apply to their forest.
10 Slovakia	1. Since the year 2005, the FMP is compulsory for all forests and for all sizes of forest area. The FMP applies for a period of 10 years.	2. The owner has the right to participate. Forest owner's options should be recorded within planning, but not necessarily included in the FMP.	3. Normally no possibility to influence, but a trade-off with the authorized forest manager may occur.

new Romanian Forest Code from 2008. As consequence, all harvesting operations done in a forest without a FMP will be illegal in Romania, irrespective of the real needs of the stand for the forestry works, e.g. an over-mature productive forest cut without a FMP will be treated as a penal law infringement.

A synthetic view of the rules in establishing the forest management plans is proposed in the

Table 4.

The participation of the landowner in the forest management planning processes is generally acknowledged, but the extent and the outcomes of his/her participation largely varies. Thus in some countries the forest owners' options are priorities in the planning process (Latvia, Estonia, Montenegro), in some other cases the owners' options are recorded along

Table 4 Rules of establishing the forest management plans

Forest management planning in private forests		1	2	3	4	5	6	7	8	9	10	
		BG	CZ	EE	KO	LV	MK	MN	RO	SB	SK	
Binding force	The FMP is compulsory while harvesting only			x		x						
	The FMP is compulsory in any case and any forest*	x	x		x		x	x	x	x	x	
Who does initiate	The owner (through public/private advisors or agencies with specific license for such activities)		(x)	x		x					x	
	The State (undertaking the FMP on the behalf of the owner)	x	x		x		x	x	x	x		
How	Owner participation	The owner's preferences are considered priority in planning (if lawfully)			x		x	x**	x			
		The owner's preferences are only recorded		x		(x)					x	x
	Public participation	No contribution from the owner's side	x				x		x			
	Public participation	Public debate is possible	x						x	x	x	x
	Public participation	Nothing specified about		x	x	x	x	x				

Note. * In Czech Republic and Bulgaria the forest management planning is compulsory for forests reaching a minimum threshold area e.g. 50 ha and, respectively, 2 ha. ** In the case of forests larger than 100 ha.

the planning process, but not necessarily included in the FMP (Czech Republic, Serbia, Slovakia and, into a certain extent, Kosovo), while in some other cases their options are not relevant in the planning process (România, Macedonia, Bulgaria).

The capacity of the forest owners to choose management goals and to implement them within the forest management plans varies from a country to other, but one may have three different cases: (i) the forest owner can solely decide on the management goals and on the forest works to be undertaken, of course, within the limits of the law (Latvia, Estonia); (ii) by law the management goals should be negotiated with the forest owner (Montenegro, also in Macedonia, if the forest is larger than 100 ha); (iii) the forest owner can not decide on the forest management goals that are set up in technical norms for forest planning and imposed through specific forest administration agencies (Romania, Czech Republic, Bulgaria, also Macedonia, for private forests

smaller than 100 ha).

The fact that the FMP is compulsory for all private forests and the fact that, with few exceptions, the forest owner does not participate to the establishment the forest management goals characterise a common pattern of the property rights in ECE region: here the State owns (in economic sense) the management rights over the forest resource. A second common pattern is the fact that higher is the forest area owned, higher are the chances that the forest owner retains a residual control over the forest management rights. For larger properties, the owners may eventually participate and contribute in the planning process.

As governance pattern, the Table 4 clearly shows that the forest management planning is not used as a place of negotiation, knowledge sharing or capacity building. In many ECE countries, the forest management planning is a way to extend the central-regulatory decision-making process to the resource-unit level. The State through specialised forest agencies has

the authority to regulate the use of the forest resource and to transform the forest on long term. Therefore the forest owner has little power to change or influence the structure or the management of the resource.

The withdrawal rights. In most CEE countries, the provisions of the forest management plan regulate the timber harvesting rights. Additional administrative procedures apply, such operational plans, special plans, harvesting permits, notification of the harvesting, compulsory recording of the timber to be cut. In some countries the restrictions apply only for the final harvesting, e.g. the owner is not obliged to ask for administrative permits in the case of the sanitation cutting, tending or harvesting in young stands. In Estonia and Latvia the amount of timber to be harvested can be decided under certain limits by the owner himself (Table 5), besides the fact that under a certain harvested volume the owner is not obliged to any administrative authorisation for timber withdrawal. This is to compare with the Romanian case were even for a sanitation cutting of one cubic meter per hectare and per year the owner is obliged to require an administrative permit and to proceed to the recording of wood, marking of trees and procurement of the transportation documents. Generally, in all the countries age restrictions apply for the final harvesting of the stands, e.g. the stands can not be harvested before reaching a certain threshold age. However, for Norway-spruce based stands, the minimum age to be reached before cutting varies between 80 (Czech Republic & Estonia) and 110 years (Romania). Only in Latvian case may this minimum legal threshold be lowered at the forest owner's request. Strictly set up in the legislation, the rotation period is limiting the owner's ability to benefit from the forest resource or to harvest as reaction to the market opportunities or to the cash flow needs.

In all cases except Estonia, an authorized forest manager does the selection and the marking of trees. In some legislations (Kosovo, Mac-

edonia) the forest manager should even have a minimum experience on forest management (one to three years) to be authorized for marking. Only in Estonia can the owner select the trees by himself, while in Czech Republic and Slovakia the marking of trees is not required in young stands. In all the cases where the service of tree marking is mandatory, the owner has to pay for it.

Once the volume to be cut is established, e.g. in the FMP, one may think that the owner can fully benefit from its withdrawal right. However, the administrative authorisations needed and the compulsory marking of tree by a forest official show that the owner has not the authority to determine how, when, and where harvesting from the forest resource may occur. Therefore the common pattern of the withdrawal rights in ECE countries is that the owner holds only a residual control of the withdrawal rights: he can only accept or reject the amount of timber entirely specified in a technocratic-lead process.

As common governance pattern, it should be noted that the implementation of the withdrawal right is fully depending on a forest agency, and often one other forest agency will control and enforce it. The power of the forest agencies over forest management in general is connected with a lack of trust in the forest owner who is not trained enough to select by himself the trees to be harvested.

Discussion

The results of the study are consistent with conclusions from Agrawal & Ostrom, (2001), e.g. in forestry it is common to assign only operational-level property rights (access and withdrawal), while management, exclusion and alienation are limited. The study however goes further, in showing that: 1) not only the management rights are limited in the studied ECE countries, but they are even taken-over from the private forest owners (they remain

Table 5 Governance of the withdrawal rights for timber

	1. Who establishes how much timber can be harvested	2. Who establishes when timber can be harvested	3. Who establishes how/ which timber can be harvested
1 Bulgaria	1. The FMP or the State Executive Forest Agency (in forests under two ha).	2. The FMP establishes when. The State Executive Forest Agency will enforce the rule.	3. All the trees should be marked by forest staff based on FMP rules.
2 Czech Republic	1. The FMP, according to the category of forest, the forest shape and the needed forest works.	2. The FMP. Final harvesting is to be done after 80 years stand age. The State Forest Administration may allow earlier harvesting at the request of the forest owner.	3. All the trees should be marked by authorized forest manager. Marking is not required for harvesting in stands younger than 40 years.
3 Estonia	1. The FMP. The forest owner is allowed to cut without forest notification three cubic metres of wood per year and per hectare where such cutting is permitted by legislation, but no more than 20 cubic meters per property. For more than 20 cubic metres, a notification of the forest authorities is required.	2. Clear-felling ages are set by the Forest Act, e.g. in pine forests 90 – 160, spruce 80 – 120. Details by different forest types are established in the legislation.	3. The legislation does not require the marking of the trees to be harvested. If the forest owner is interested, he may order the marking at his own costs.
4 Kosovo	1. The amount of timber to be cut is established by the State Forest Agency in annual operational plans and is binding for all forest owners and all timber withdrawn from forests.	2. The State Forest Agency.	3. The trees for felling are selected and marked by the local forest technician (State Forest Agency).
5 Latvia	1. The forest legislation. The owner needs a harvesting permit (but not in the sanitary cuttings, in the case of the wind damages, and in the thinning of forest stands with stump diameter under 12 centimetres). The harvesting permit is not needed if less than 10 cubic meters per year are extracted.	2. The Law on Forests establishes when the tree harvesting is allowed according to the type of forest.	3. The selection and marking of trees is done by State Forest Service employees. Forest owner has to pay for this service.
6 Macedonia	1. The forest regulations and the special plans. The private forest owner should require a harvesting permit. The approval of felling is done by the public forest enterprise.	2. The age of stands to be cut, and the way of cutting is decided in forest regulations. Private forest owners are obliged to use in this purpose the services provided by the public forest enterprise.	3. The felling marking is carried out by the public forest enterprise according to the rules established in the special plans.

Table 5 (continuation)

	1. Who establishes how much timber can be harvested	2. Who establishes when timber can be harvested	3. Who establishes how/ which timber can be harvested
7 Montenegro	1. The FMP. The harvesting itself requires an administrative order issued by the competent administrative authority.	2. The forest owners and the authorities take the decision jointly.	3. The trees could be harvested only after their selection, marking and recording. Marking can be done by the both legal entities and entrepreneurs qualified.
8 România	1. The FMP. Without the FMP, a forest cannot be legally harvested, even if the stands arrived at the maturity age. The maximum amount that the owner can harvest without a FMP is one cubic meter per year and per ha as sanitation cutting.	2. The age for final cuttings is set in the regulation on FMP (e.g. harvesting age is 110-120 years for Norway spruce and 140-160 years for oaks) and enforced by the State forest inspection.	3. The trees could be harvested only after their selection, marking and recording. Marking can be done only by the forest administration. The owner has to pay for this service.
9 Serbia	1. The type and the amount of cut are determined by FMP or Forest Management Programme and they vary with the origin of the forests (seeds or coppice), the purpose of forest management and the main function assigned to the forest.	2. The age of cut is determined by planning documents for private forests, e.g. for beech harvesting age varies between 120 years (high forests) and 80 years (coppice).	3. Marking trees is done by the technicians licensed to perform professional activities in forest management.
10 Slovakia	1. The amount of timber that can be cut it set in the FMP and is binding for forest owners or forest managers.	2. The State Regulation on the FMP states the age of stands when a forest can be harvested.	3. An authorized forest manager selects and marks the trees to be harvested. Marking is not required for tending forest stands under 50 years old. The owner has to pay for this service.

in the public domain), and 2) the withdrawal rights on timber, yet recognised in the forest management plans, are in reality strongly restricted from an economic viewpoint (the owner hold only a residual control over withdrawal rights). The study reminds that the ownership in the economic sense pertains to the attributes of the assets rather than to the assets themselves (Foss & Foss 2001), e.g. ownership on timber would have different characteristics than ownership on forest land (Bouriaud & Schmithüsen 2005). Therefore understanding

and comparing the different national regimes of the forest ownership should pay attention to the economic rights attached to each forest attribute.

The literature largely admits that the high level of the transaction costs explain why some forest benefits remain in the public domain (Barzel 1997). However, the fact that the forest management rights remain in the public domain, even for a private forest, is not explained by the high level of transaction costs for the specification, measurement and delineation of

the timber. One should rather remember that most forest attributes ecologically-valued are critically pending on the existence of the standing timber, the essential element of the forest ecosystem. Thus the restrictions on timber withdrawal rights and the take-over of the forest management rights are in fact the solutions adopted to address the problem of the forest attributes that are public or common-pool featured. The high transaction costs related with the specification and delineation of these forest attributes explain why the State is so deeply involved in regulating the private forestry, at the point to fully take-over the forest management rights. The study brings into attention a potential field for future comparative research, e.g. in which governance-related conditions some forest attributes are left in the public domain.

For some authors, the governmental allocation is an efficient way to protect the attributes that do not have a market value (Barzel 1997), yet constant efforts are undergoing to establish property rights systems to less tangible forest products, e.g. forest carbon. Nonetheless two main problems should be acknowledged. First of all, the modest corruption-related scores in the ECE region represent a strong reason for questioning the efficiency of State ownership over forest management rights in protecting non-specified forest attributes. Recent papers highlighting are problems with the forest protection and sustainable forest management in ECE countries, particularly in Carpathian region (Knorn et al. 2012a, Knorn et al. 2012b, Bouriaud & Marzano 2013, Kuemmerle et al. 2007). Key conditions for corruption appear when the State regulates private and community owned forestland and, in the same time, the State is responsible for the supervision of the forest production e.g. delivering permits, authorisations and monitoring the legality of all forest-related activities (Kishor & Damania 2007, Callister 1999, Contreras-Hermosilla 2000).

Secondly, when the governmental allocation applies indirectly, through capturing the

management rights upon a private amenity such timber, distributional and ethical effects of such allocation should be considered. By now, a paternalistic State paradigm (Drăgoi et al. 2011) dominates the governance of the private forestry and the participatory mechanisms are rather absent in ECE countries (Howard 2002). In other words, the forest management planning is in that “first generation” stage, in which “the socio-ecological system is assumed to be unproblematic and a cognitive rational approach is used to address its management” (Lawrence 2007). In contrast to Western countries where FMPs may serve for informational steering only (e.g. Sweden case analysed by Brukas & Sallnäs 2012) in all ten studied countries the FMPs fulfil regulatory function. The forest management planning, including the enforcement of the harvesting rules, seems to be one of the *raison d’être* of the strong forest bureaucracies in ECE countries, legitimating their knowledge and expertise on forest management. The current local forest governance system, based on top-down, hierarchically imposed and enforced set of compulsory rules, is far from implementing a plurality “of visions, practices, expectations, technical, economic and social discourses, decision-making regimes” (Mermet & Farcy 2011).

The State regulation is perceived as limiting foresters’ (Lawrence 2009) and owners’ (Glück 2011, Nichiforel 2010) ability to use their knowledge and expertise to manage the forests. The rational planning and the over-regulation of forest management and harvesting pose thus a problem in the perspective of the individual adaptation and learning to new challenges of the forest management such the adaptation of the forest management to the climate change.

Conclusions

Our study focuses on the forest landowners’ managements and withdrawal rights of timber

as indicators of what the owners really own from the forest resource and of what they can really influence in the forest management. The analysis of economic rights on timber shows how full (legal) private ownership on forestland co-exists with a public (economic) appropriation of the forest management rights. There are two kind of implications here. One implication is methodological and consists on the fact that understanding and comparing the regime of the forest ownership requires a special analysis of the economic rights attached to each forest attribute. One second implication, policy-related, is that the meagre current impact of the landowners' behaviour in the forest management in ECE region should be acknowledged in policy measures addressing private forestry.

In all studied countries, the forest management is subject to a compulsory forest planning, done by a State agency or under the supervision of a State agency, with little if any contribution from forest landowners. The restrictions on timber withdrawal deal with the age of stands to be cut, the method of harvesting and the observation of some enforcement rules, e.g. marking of tree prior to be cut by a forest specialist. The main target of the restrictions is not the regulation of the timber flow as such, but the enhancement of a satisfactory level for non-specified forest attributes, public or common-pool featured, but with high ecological value. The State-led planning is viewed in the Eastern and Central Europe as the main instrument of ensuring sustainable management of the forest resource, implementing and transposing the central legal norms at the local level.

Since the FMP prescribes the allowed timber production, therefore the owners' income for the next ten years, one may expect that forest owners would have an active role in the planning process. The results of the study do not confirm this expectation, the forest owners being put outside of the planning process (Bulgaria, Czech Republic, Macedonia, Romania)

or being only consulted, with no real influence in the process (Serbia, Slovakia, Kosovo). They cannot decide how, when, and where harvesting can take place, and they cannot change the structure of the resource, e.g. switch from one tree species to other, modify the tree canopy (lowering the stand density), change from regeneration by seeds to vegetative regeneration (from high forests to coppice), shortening the rotation age, etc. This situation applies for a forest area of more than 7.3 million ha (larger than current Romanian forests) and an annual volume harvested higher than 25 million m³. The absence of local self-governance mechanisms has serious implications on the learning and adaptive capacity of private forestry to cope with current challenges such the climate change, the increased industry needs for wood as raw material, or the marketing of innovative forest products and services.

Systemic governance changes are supposed to affect the forest sector in the next years under the international regime of forests. The results of this study suggest that the evolution towards more open, participatory and accountable decision-making rules would be rather difficult or improbable in eight of the ten selected countries. Moreover, the effectiveness of the participatory decision-making in local forest resource governance can not be accurately assessed without a proper understanding of the forest management planning process. The forest owners' degree of participation in negotiating the rules within the forest planning may be a reliable indicator of changes in the forest sector governance, if they were happen.

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