9 Today and Tomorrow of Private Forestry in Central and Eastern Europe

Jacek P. Siry
Department of Forestry, North Carolina State University, 3120 Jordan Hall, 2800 Faucette Drive, Raleigh, NC 27695-8008, USA

Introduction

In the 1990s, countries in Central and Eastern Europe (CEE) initiated dramatic reforms in an effort to democratize their political systems and base their economies on free market principles. For the forest sector, these changes meant the privatization of wood-processing industries and the return of private forests that had been nationalized to their former owners following World War II. CEE countries also actively participated in regional and global forest policy processes that recognized sustainable forest management (SFM) principles as the foundation for the management of their forest resources. At the regional level, Ministerial Conferences on the Protection of Forests in Europe, also called the Pan-European Forestry Process, have been essential in the development and implementation of commonly agreed SFM criteria and indicators. This drive to more sustainable and environmentally friendly forest management is further strengthened by the arrival of market-based initiatives such as forest certification.

Rapid changes have made existing forest legislation obsolete and necessitated its profound revision. In recent years, new or revised forest laws have been passed in most CEE countries. While the previous laws and policies focused primarily on securing an adequate timber supply, today's policies are driven by environmental concerns. A shift towards environmentally oriented forest management and stringent regulations represent a serious challenge to thousands of new, small-scale forest owners. Many of these owners have very limited forestry expertise and investment capital. Their limited resources and sharp drops in public assistance raise concerns about the long-term sustainability of private forest management. These concerns slow down the restitution process and result in proposals for more stringent controls on private forests.

The purpose of this chapter is to evaluate the restitution process and forest policies that are applicable to private forests in order to assess their current situation and prospects for the future. The impact of progressive globalization of timber markets and wood-processing industries and the internationalization of environmental policies is evaluated. Since most countries in the region have applied for European Union (EU) membership, the possible implications of accession are discussed as well. For the purposes of this study, CEE is defined as a 15-state block composed of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, the former Yugoslav Republic of Macedonia, and Yugoslavia. These states form a contiguous region stretching from the EU in the west to the former Soviet Union in the east. Although they formed part of the former Soviet Union, the Baltic states are included in the study because they have carried out democratic reforms and are currently returning nationalized forests to their former owners. Other countries of

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the former Soviet Union have not yet reached that stage.

Development of Private Forests

Following World War II, communist governments nationalized all large and medium-sized property, including forests. Nationalized forests were either taken over by state forest agencies or became part of collective farms. As a result, more than 90% of forests became publicly owned in most communist countries (Broda, 1988; Deacon, 1996; World Bank, 1999; CRGR, 2000; Daugaviete, 2000; Ionov *et al.*, 2000; Kallas, 2000; Kozma *et al.*, 2000; MASR, 2000; Solymos, 2000).

With democratic and economic changes progressing, the restitution of seized private property became a political issue. Some countries, including the Czech Republic and the Baltic states, moved fairly aggressively towards returning private forests to their former owners. Other countries, such as Bulgaria, began to return forests only recently and on a smaller scale. Poland decided against the restitution of private forests in favour of other forms of compensation, such as privatization bonds representing shares in other state-owned property slated for privatization. Nevertheless, private owners in Poland account for 18% of the country's forestland. These are primarily small forests that escaped the original nationalization and have grown over time as the government instituted large afforestation programmes that also benefited private lands.

The restitution process has been undertaken to serve historical justice, but has paid little, if any, attention to effective management of the forests. This approach has created a large number of small forest owners with a very limited capacity for effective forest management. An average private forest holding in CEE is about 5 ha, which is much smaller than the 26 ha in the EU (UNECE, 2000b). It ranges from 0.6 ha in Romania, to 2.8 ha in Slovakia, and rises to 10 ha in Estonia (Ilavsky, 1998; Puustjarvi *et al.*, 1998; Bouriaud, 2001). These small owners have limited forestry training and little available capital to invest into forest management (World Bank, 2001).

The very small scale of forest operations makes viable forest management difficult because they generate little income and are harvested at very long intervals; small scale also limits the application of modern forest technologies. To resolve these problems, forest cooperatives, associations and improved extension programmes are being advocated (Solberg and Rykowski, 2000; Jager and Meszaros, 2001; World Bank, 2001; Zajac, 2001). Efforts to create effective private owner organizations have been unsuccessful so far, even in cases where state financial support was available. Having in mind negative experiences with forced cooperatives of the past era, private forest owners are unwilling to give up their newly acquired property and decision-making rights. These difficulties indicate that a substantial amount of time is required before these efforts will become effective (World Bank, 2001).

Out of 42 million ha of CEE forests, nearly 9 million ha were in private hands in 1997 (UNECE, 2000b). Latvia, Yugoslavia and Poland have the largest areas of private forests ranging from 1.2 million ha to 1.5 million ha. In Slovenia, Yugoslavia, Slovakia and Latvia, private owners account for 40–60% of the total forestland. However, taken together, private forests in the region constitute only about 21% of forestland, and the forest sector remains dominated by public forests. The current CEE ownership structure clearly contrasts that of the EU. While 79% of CEE forests are publicly owned, in the EU only 30% of forests fall into public ownership.

Management Regulations

Alongside the restitution process, there has been a trend to set up broader and higher forest goals and performance criteria. CEE countries have recently developed new forestry laws in which environmental criteria have received the leading role, which moves away from a commodity-production orientation. In most cases, public and private forests are regulated by the same legislation and in a very similar manner. Recognizing that new regulations were developed primarily for public forests, this approach creates problems in private forestry, where timber income is important. This is especially the case where private goals do not coincide with social goals, which may put more weight on forest protection and conservation functions; and when public support for private forests is reduced.

In general private forest owners are required to have an approved 10-year management plan

that determines all activities in their forests. They have to observe prescribed rotations, obtain a licence to cut their timber, regenerate harvested stands within 2 years of harvest, and protect their forests. Harvests must be approved and trees marked by a licensed forester. The forests have to be protected against fire and diseases. The owners are not allowed to convert their forestland into other, non-forest uses. The enforcement of these regulations, however, is generally weak, due to limited resources of responsible government agencies.

While high management standards have some impact on private forest management, the major problems rest in the technical criteria used to determine timber harvest and silvicultural effort, which have been little affected by the forest policy shift. Timber harvest is determined by the annual increment of forest stands and the minimum rotation length established for dominant species. The model that foresters use to set rotations is fundamentally a biological maximization model. In commercial forests, the rotation length is determined by the production of a desired sawtimber volume while minimizing losses on the mean annual increment. In protection forests, the rotation length is determined by the achievement of environmental objectives specified in management plans, which translates into even longer rotations.

This approach results in very long rotations which are much longer than those that would prevail under value maximization. In Poland, for example, the minimum rotation length for pine is generally set at 80 years in commercial forests and 100 years in protection forests (MRGZ, 1988; Jaworski, 1990). While natural regeneration is becoming more common, many harvested coniferous stands need to be replanted. Pine planting density on average varies from 4000 to 10,000 seedlings per hectare, but could be even higher (MRGZ, 1988; Jaworski, 1990; Deacon, 1996). Dense planting increases competition among seedlings for light, water and mineral nutrients, and can actually slow timber growth instead of capturing the full growth potential of the site. It also requires multiple tending cuts. Since these cuts target primarily small-sized wood, these operations generate little income.

This approach to forest regulation emphasizes even timber harvest flows over time (sustained yield) and is generally unresponsive to prices, factor costs and the discount rate (Hyde, 1980). As applied, this management approach frequently leads to uniform management across all sites. As a result, the productivity of both state and private forests is generally low. A productivity comparison carried out in the early 1990s indicates that productivity in Nordic countries is six times higher than in state forests in Estonia (World Bank, 2001). EU timber production is three times higher than in CEE on growing stock that is only twice as large (UNECE, 2000b).

Management Outcomes

Private forest management is considered unsatisfactory in many countries. Many of the new private forest owners are poor and have a high time preference. They want to benefit from their forests and harvest timber, trying to take advantage of improving timber markets and rising prices. Timber sale proceeds are used primarily for personal consumption or non-forest management investments, which are less risky and generate higher returns in a shorter time. As a result, investment in forestry suffers. In some cases, harvested stands are not properly regenerated and tending cuts are often neglected, which may result in a lower production of timber.

In Poland, for example, private forest owners clearcut 8000 ha between 1992 and 1995, and high-graded another 45,000 ha in violation of state-mandated management rules (DS, 1996). Average yield in private forests equals only 118 $m^3\ ha^{-1}$, compared with 201 $m^3\ ha^{-1}$ in state forests (GUS, 1995). This difference results from a larger share of younger stands, poorer sites, and less intensive management in private forests. In Romania, up to 30,000 ha were deforested and nearly 50,000 ha damaged (Bouriaud, 2001). In Slovakia, only about 5% of non-state forests, which account for 57% of the country's forestland, were managed by their owners in accordance with management plans (Ilavsky, 2001).

Contrary to a common perception that private owners tend to overexploit their forests in pursuit of short-term gains, the small forest holdings are less intensively utilized, and in many cases timber harvest from private forests is well below the allowable cut envisioned by management plans (Puustjarvi *et al.*, 1998; World Bank, 2001; Zajac, 2001). As a result, private forests supply proportionally less timber than their

forestland share would indicate. In Poland, for example, harvest from private forests does not exceed 50% of the allowable cut. The low harvest can be attributed to the lack of knowledge, limited access to markets and subsistence needs.

The instances of inadequate management in private forests, however, raise concerns about their long-term sustainability and result in calls opposing their restitution and advocating more stringent regulations. Lack of interest, training and expertise, as well as excessive fragmentation, timber production focus, high time preference and insecure property rights are widely recognized as factors contributing to unsatisfactory management outcomes in private forests. Slowly progressing and incomplete forest ownership changes also contribute to the negative perception of private forest management. Forests without a clearly determined ownership status are generally left unmanaged. State agencies are reluctant to manage forests that will be returned to private owners. Since restitution may take years before private owners take over, management of those forests is neglected.

Excessive forest fragmentation is frequently identified as the leading cause underlying limited success of private forestry (MEPNRF, 1997; Csoka, 1998; Solberg and Rykowski, 2000; Ilavsky, 2001; World Bank, 2001; Zajac, 2001). In some countries, the average area of private forest holding is less than 1 ha, sometimes split into more than one parcel. Such a small scale of forest operations indicates that many of them may be composed of just a single stand, making profitable management very difficult. In an effort to resolve some of these problems, many countries encourage the creation of forest associations and provide some assistance for private forests. Educational and technical assistance includes management planning, free seedlings, forest protection and afforestation subsidies. These programmes, however, are not well funded because of budgetary shortfalls (Budzynski and Jastrzebski, 1995; Deacon, 1996; DS, 1996; World Bank, 1999, 2001; Kallas, 2000).

While forest fragmentation receives much scrutiny, it is surprising that management rules generally are not questioned. Applied in large, well-managed state forest estates, they are less damaging than in small private forests, where they force the owners to make investments into forest management with little or no promise of positive returns in a reasonable amount of time. The major problem with applying these approaches to forest regulation rests in failing to recognize that private forestry is not simply a smaller version of large-scale forestry. An average size of a state forest district in CEE is nearly 4000 ha (UNECE, 2000b). The larger scale of production allows income generation on a more consistent basis, sufficient to cover regular forest management costs. State forests can also draw on large capital accumulated in their growing stock. And if this does not suffice, they can resort to state budgets for bailout.

To make the situation for private forests even worse, private forest owners need to participate in possibly inequitable timber markets (World Bank, 2001). In most CEE countries, timber markets are dominated by state forest agencies, which supply the bulk of wood (Herbohn, 2001). Wood-processing industries may prefer to buy wood from state forests, which can guarantee the supply of larger volumes on a consistent basis. In fact, because of possibly higher transaction costs and erratic supply, the industries may refuse to buy timber from small forests. Furthermore, state forests trading very large volumes may be able to secure better prices and transaction terms, not even mentioning the advantages associated with much better market information. Also, local markets where private owners sell most of their wood may be poorly developed, with no competitive bidding. This would be the case in rural areas with undeveloped wood-processing industries. Finally, EU accession and progress in forest certification both increase the competitive pressures facing private forests.

Forest Certification

Market-based certification is an initiative aiming at improving the quality of forest management and promoting higher prices or better market access for wood products derived from sustainably managed forests. Certification can be defined as the verification that forest management follows certain forest sustainability criteria through an independent assessment (Nilsson, 2001a). Certification usually has two components: forest management auditing and product labelling (Elliot and Schlaepfer, 2001).

The EU accounts for most demand for certified wood products. While demand continues to grow, it remains small compared to the size of the market. Globally, certified wood products

represent less than 1% of forest products sales (UNECE, 2000a). It was estimated that only about 600,000 m^3 of certified wood was available on the European markets in mid-1999, with a potential production of 20 million m^3 of certified roundwood per year (UNECE, 1999). Today, certified wood products are sold primarily in 15 EU countries. Market share of certified wood products has reportedly reached 25% in the UK, 4% in the Netherlands and about 1% in Germany (UNECE, 2001a).

At the same time, certified wood supply in Europe continues to grow as more and more forests are certified, because of the rapid development of new certification programmes. Today about 80 million ha are already certified in the region (UNECE, 2001a; Vilhunen *et al.*, 2001). It appears that only a small fraction of certified wood is labelled and sold as certified because of weak demand and the inability of some certification schemes to label products derived from certified wood. The largest exporters of certified wood in Europe include Finland, Sweden and Poland. With low or no price premiums for certified products, the rationale for certification includes, for example, access to new niche markets, environmental image promotion and increased credibility with consumers (Hansen *et al.*, 2000; UNECE, 2000a, 2001a; Vilhunen *et al.*, 2001).

Final consumers are not very active in creating demand for certified wood products and their role is not expected to grow, at least in the short- to medium-term. The primary force behind a drive to certify forest management is the pressure from environmental groups (Hansen *et al.*, 2000; Vilhunen *et al.*, 2001). The strongest demand drivers remain wood product retailers, who are interested in maintaining or increasing their green image. In addition, public procurement plays an increasingly important role in creating a demand for certified products. Public administrations in the UK, Belgium, Scandinavia, the Netherlands, Germany and Austria have taken steps that favour certified wood.

Most common market-based certification approaches in Europe are those promoted by the Forest Stewardship Council (FSC) and the Pan-European Forest Certification Council (PEFCC). FSC promotes itself as an international non-governmental organization that promotes responsible forestry and fulfils ecological and social goals, while remaining economically viable. FSC has certified about 20 million ha of forestland since its inception; it is making substantial gains in CEE, where it is present in Estonia, Latvia, Romania, Hungary, Slovakia and Poland. In the region, FSC certifies primarily large, state-owned forests geared towards industrial roundwood production, but group certification projects for private owners have been initiated in Latvia and Estonia (Rickwood, 2001). Despite this progress, the FSC-certified forest area in many countries is still relatively small. One exception is Poland, which can be called a certification leader not only in the region but also in the world. The total FSC-certified forest area in Poland is 4 million ha, second in the world only to Sweden with 10 million ha.

FSC certification gains in Poland are somewhat surprising. There is little, if any, demand for certified wood in the country (Hansen *et al.*, 2000). While Poland exports some wood, the vast majority of the timber harvest is being utilized domestically (Ballaun, 1996). Even wood exports to the UK, Germany and the Netherlands, where markets for certified wood are relatively better developed, do not explain the substantial certification effort in state forests. Unlike Sweden, this effort cannot be explained by pressure from environmental movements either, as they have fought mostly over the enlargement of existing national parks or over the creation of new ones on state-owned lands.

The Polish State Forests, a government agency managing 82% of the country's nearly 9 million ha of forests, came under pressure in the 1990s when the restitution of private property became an issue. Some political forces proposed the return of nationalized forests to their former owners or even privatizing state forests to meet claims for all nationalized property. Estimates indicated that about 2 million ha of state-owned forests were to be returned to their farmer owners (Trzaskowski, 1999). The Polish State Forests, professional associations and some ecological movements staged a campaign protesting against any of the proposed changes, on the grounds that they would be detrimental to the future of the country's forest resource. Restitution opponents used forest management outcomes in private forests, including less intensive management and unauthorized harvests, to paint a dark picture of widespread forest decline resulting from forest restitution and privatization. The Polish State Forests wanted to demonstrate that they are well enough trained and equipped, and responsible enough to manage state

forests and retain their dominant position in the country.

In these circumstances, FSC proposals to certify state forests were well received. Additional incentives included initial FSC assessments carried out at no cost to the state forests. But, most importantly, FSC certification did not require any forest management changes which could make the process potentially much more expensive. The only required corrective action resulting from FSC assessments was to disseminate information about FSC certification throughout the forest administration (Kiekens, 1998). In this way FSC expanded its market share, while the Polish State Forests improved their image, helping them defeat the attempts to curtail their dominant position. Since the certification is fast, convenient and cheap, it is quite likely that all state forests in Poland will become certified soon. It is clear, however, that FSC certification in Poland did not change or improve state forest management.

Current FSC certification schemes appear to hurt private forest owners in Poland. First of all, certification is used to demonstrate the superiority of state forest management, which creates a negative climate for making changes in forestry laws that would actually help to improve private forest management. It is estimated that wood products derived from timber harvested from certified forests have about a 20% market share, although these products are not generally labelled as certified (UNECE, 2001a). State forests produce certified wood in sufficient quantities to meet the supply requirements of many large firms. At least two of them – the Krono Group, a leading producer of wood-based panels, and Ikea, a leading furniture manufacturer – advertise in some manner the use of certified wood in their products. But if most of their production is based on certified wood, then the firms may be less willing to buy uncertified wood from private forests.

While FSC claims that these two firms create a demand for certified wood in Poland, the truth is far more trivial. Forest management and timber harvesting were certified for other policy reasons; these firms simply take advantage of it, especially because there is no need to pay a price premium for certified wood. However, unfair markets may decrease the already meagre incomes of private owners and reduce outlays for forest management, limiting both rural employment and the ecological benefits that the FSC wants to promote through certification. In the end, FSC certification of state forests in Poland discriminates against small-scale private owners and does little to address the underlying causes of negative management outcomes in private forests. This outcome is similar to that observed in Sweden, where private forests have also been disadvantaged by FSC certification (Elliot and Schlaepfer, 2001).

While FSC also tries to develop certification schemes for small private forests, these efforts are in their initial stages. First, FSC would have to develop certification standards and effective procedures for groups of very small properties and define the ecological and social standards to be followed. Otherwise, certification will remain a rather expensive, time-consuming and complex undertaking for private forest owners. On the other hand, small production, limited market access and no demand for certified wood generate little interest among private owners in becoming certified. The participation of private forest owners in the development of FSC certification standards to be applied in their forests is currently very limited.

FSC certification has favoured large-scale industrial forest holdings, but in the EU more than half of timber harvest comes from small-scale private forests. This situation has led to the development of an alternative certification scheme. The PEFCC Process, which has been focused on developing group certification approaches for small forest owners, was launched in 1999. This is a voluntary, democratic and private initiative that provides assurances to customers that the wood products they buy come from sustainably managed forests according to Pan-European criteria defined in the resolutions of Ministerial Conferences on the Protection of Forests in Europe. Participating countries are able to develop their own certification systems in compliance with the Pan-European criteria. This added flexibility may help in better addressing country-specific needs and conditions for certification.

In early 2000, organizations from 17 primarily EU countries participated in the PEFCC Process, while several others expressed an interest. At present, 38 million ha of forestland are certified in Europe (PEFCC, 2001). The process has won support from forest associations, which represent 12 million owners, as well as forest industries and trade organizations. The PEFCC approach may be better suited for private forests in CEE. But first, organizations that can become a part of this process

need to be established in Poland and other CEE countries.

While there is no formal reason why FSC and PEFCC cannot coexist in the same country, the dominance of one system makes it difficult for the other to enter. Mutual recognition of various certification schemes remains elusive despite several attempts to facilitate progress. Despite impressive gains in PEFCC certification, FSC continues to be the dominant system in the marketplace because of strong backing from environmental groups and large retailers and the lack of labelled certified forest products under alternative certification schemes (Hansen *et al.*, 2000; Vilhunen *et al.*, 2001).

Impact of EU Accession on CEE Private Forestry

Forest policy and legislation in CEE are little affected by EU accession talks, primarily because the EU has not developed a comprehensive common forest policy. Broad forest policy objectives are quite similar in EU and CEE countries because they follow from the Rio agreements and the Pan-European Forestry Process (Csoka, 1998). As a result, forestry is not even mentioned in pre-accession documents, and it appears that EU membership will bring only small changes in forest policies (Flasche, 1998). While some forestry subsidies are available in the EU, their level is relatively low and regular timber production is subjected to free market rules. Current EU members also use similar policy instruments to support private forests (Kaczmarek *et al.*, 1998). These include state subsidies, low interest loans, favourable taxation, technical assistance and education. It appears that CEE approaches towards private forests will change little, but they may become better funded if part of larger EU packages. The EU supports some forestry programmes in CEE using pre-accession funds, including educational programmes, institutional building, and afforestation with funding from the PHARE and SAPARD programmes (Eisma, 1998).

EU member states have not supported the development of a common forest policy because the forestry sector has worked quite well within the market economy, there is a considerable diversity of forest conditions and management approaches that make an agreement difficult, and some member states feared that such a policy will result in a situation similar to that in agriculture, where agricultural sector subsidies have increased their contribution to the EU budget (Eisma, 1998; Hyttinen, 2001). In this situation, EU forestry actions are pursued by policies that are applicable to agriculture, competition, harmonization, trade and environment. Most of the existing EU regulations deal primarily with afforestation, forest statistics, biodiversity, and protection against fires and diseases (FAO, 2001). The accession of Austria, Sweden and Finland in 1995 roughly doubled EU forest resources and increased the need to coordinate EU forest actions. In 1997, the European Parliament approved an EU forestry strategy, which envisions common support for forest protection, sustainable forest management and promotion of EU wood-processing industries. The accession of CEE countries and a further enlargement of EU forest resources may provide enough stimuli for another attempt at developing a common forest policy.

Since timber markets have been liberalized in CEE and prices have already approached average European levels, the impact of EU membership on prices will initially be quite small. Timber and wood-products trade between EU and CEE applicants is duty-free, and EU accession is not expected to affect price formation significantly. A comparison of timber prices in Austria in the pre- and post-accession periods with prices in Germany (EU member) and the Czech Republic (EU candidate) shows that prices in all three countries moved in a similar manner (Puwein, 1998). EU tariffs for non-member countries do not exceed 10% of wood-products trade value. If CEE countries erected high tariffs for wood imports from non-member countries, then after accession prices may actually fall.

In the longer term, one may expect a greater impact from the participation in the single market, which is based on principles of free movement of goods, services, labour and capital. Foreign capital has already played an important role, which is expected to continue into the future, in modernizing wood-processing industries in CEE and providing better access to European wood markets. The single currency will help to eliminate currency risks. In addition, the development of transportation networks is expected to decrease shipping costs. The EU assumes that road transport deregulation will decrease shipping rates by as

much as 5% (Puwein, 1998). The elimination of border controls among member states will work to lower transport costs even further. While these outcomes will exert additional pressure on CEE wood-processing industries to restructure, they also will create more competition for timber produced in state and private forests.

The Future of Private Forestry

CEE forest ownership will remain dominated by public forests in the foreseeable future. As the restitution progresses, private forest area will increase moderately. But once this process is completed, further increases will be limited and private forests can be expected to account for about one-third of the region's forestland. Any further increases will have to come from afforestation of agricultural land, which becomes increasingly available as market reforms in the agricultural sector result in removing marginal lands from production. Since forest cover in many countries is low, governments would like to increase the area of forestland. Poland alone has plans to afforest 350,000 ha of state-owned land and 700,000 ha of private land (MOSZNL, 1995). The feasibility of these plans, however, rests on the state's support, which is unlikely to reach sufficient levels.

Governments generally do not consider any large-scale privatization of the remaining state forests and it is unlikely that they ever will. A shift towards forest management based on broadly interpreted sustainability criteria makes the privatization of state forests grossly unpopular. State forests are much more responsive to policy changes and administrative actions, which makes the implementation of various environmental initiatives a much easier task. Private forests are not only less responsive to policy actions but also have a bad public image. Private owners are seen as being driven by income objectives, generally disregarding conservation values. Negative management outcomes in private forests support this view. And even if private forest owners were committed to closely following management regulations, they would still fail because their resources are not sufficient to sustain such management. In contrast, state forests are considered to be the examples of good stewardship. Furthermore, most countries have a longstanding tradition of granting open access to forest resources. Society will be unlikely to support the privatization of state forests, if new private owners were allowed to restrict access to their forests.

Excessive fragmentation of private forest holdings will remain a problem. This negative outcome of the restitution programmes could have been to some extent avoided if the need to consolidate forest holdings was factored in. Instead, some programmes imposed explicit limits on the amount of forestland that can be returned. Since the restitution is well advanced, it is unlikely that any changes promoting private forest consolidation will be made in restitution laws. In this situation, governments generally encourage voluntary consolidation processes through the creation of forest cooperatives and owner associations. Private owners, however, are reluctant to create them and forfeit newly acquired property rights. It is obvious that this process will take a substantial amount of time before effective approaches are developed.

Forest investment in private forests will continue to lag behind state forests. The shift to ecological principles in forest management implies that private forest owners will have to cope with higher production costs while participating in inequitable markets. As long as cost-efficient management approaches allowing profitable management in private forests are not developed, this situation is likely to continue. If genuinely interested in increasing investment in private forests, governments should remove the many disincentives that are present in current regulatory approaches and help owners to cope with other developments decreasing the competitiveness of private forestry.

SFM principles were adopted by forest policies to promote environmental conservation goals. Private forests are often criticized for not following forest regulations, the critics alleging that their management is not sustainable. The consequences of failing to follow forest management regulations on SFM are less clear, and environmental impacts are mixed. A mosaic of small private forests coupled with random decision making may actually provide some benefits and increase landscape diversity, especially in comparison with uniformly managed large state forest estates. These may include more diverse wildlife habitat and increased number of animal and plant species. On the other hand, such a mosaic will be likely to make landscape-level ecological management more difficult.

Timber supply in both state and private forests in the region will continue to grow. This outcome is implied by the rules used to determine harvest levels and the age structure of forest resources. Many forests, were planted following World War II. These forests will soon be reaching their final production stages. Since final harvest takes place in old forest stands, the harvest will increase with more stands reaching older age classes. Currently, annual removals amount to about 90 million m^3 while inventory growth exceeds 180 million m^3 (UNECE, 2000b). It follows that timber harvest is less than 50% of forest growth, indicating that there are substantial opportunities for increasing timber harvest without threatening its sustainability.

The growth of the timber harvest in private forests will probably be lower than in state forests. Private forests are managed less intensively and their average age and yield are lower than in state forests. As a result, there will be less timber to be harvested. Timber harvest in private forest may further be limited by the location and shape of forest holdings. Finally, private owners will be participating in increasingly inequitable timber markets. Today, timber markets in many countries are dominated by state forests, which possess substantial market power resulting from trading large volumes of timber, long-term supply agreements with wood-processing industries, and much better market intelligence. Forest certification can also discriminate against uncertified forest owners. These factors indicate that private owners may have problems in selling their timber at competitive prices, which in turn may affect their propensity to harvest.

At the same time, the regional timber demand is expected to grow. Average wood product consumption in CEE is much lower than in the EU. The annual *per capita* consumption of paper and paperboard in CEE is about 62 kg, which amounts to only about one-third of the *per capita* consumption in major EU countries (Valtanen, 1998). Growing regional economies will strengthen consumer demand. Indeed, CEE countries are seen as having a substantial forest-products market growth potential (Nilsson, 2001b). Progressing economic reforms, freer trade, lower labour costs and foreign investments have helped to modernize wood-processing industries and to increase the production of value-added wood products for domestic and export markets. Strong domestic demand and rebounding exports have helped CEE forest product markets to outperform other European regions in 2000 and early 2001 (UNECE, 2001a).

It is apparent that forest sectors and policies in CEE countries at present are, and will continue to be, influenced by non-domestic factors such as the Pan-European Forestry Process, forest certification, EU accession and global trade liberalization. Their impact can be attributed either to structural economic forces associated with growing levels of trade, finance and investment (globalization), or to the increased role of international initiatives and organizations that use international rules, agreements and markets to promote their agenda and influence the development of domestic policies (internationalization) (Bernstein and Cashore, 2000).

Globalization forces have apparently benefited CEE private forest owners so far by increasing demand for timber. Globalization has promoted trade liberalization, increased forest products exports and modernization of wood processing industries with significant foreign capital involvement. Internationalization, on the other hand, appears to have harmed private forest owners by supporting management rules that are ill-adapted to small private forests and by advancing certification of state forests, which may discriminate against private owners who are unable to certify. While CEE timber markets will continue to benefit from further industry development, growing consumer demand, lower labour costs and sufficient timber supply, some of these advantages will diminish in the future and the roles of globalization and internationalization may change.

The reason is that the economic viability of forest management across CEE and the rest of Europe is becoming a major cause for concern (Hyttinen, 2001; Lillandt, 2001; Saastamoinen and Pukkala, 2001; Stampfer *et al.*, 2001; UNECE, 2001b; World Bank, 2001). While CEE forests have some low-cost advantages, management costs will eventually approach European levels. Lower trade barriers, improved transportation logistics and increasing competition from low-cost industrial fibre plantations may further strain the economic viability of forestry in Europe. At the same time, forest industries are consolidating in order to benefit from scale economies and so are forming large buyer groups, exerting substantial market power that may put small producers at a

disadvantage. With global purchasing, forest-products industries may move to cost-efficient suppliers such as fast-growing industrial plantations in tropical and sub-tropical regions. Also lower labour costs may encourage them to move some of their manufacturing operations to lower-cost regions. In such a situation, forest certification may be used as a non-tariff trade barrier. This is because higher wood production costs in Europe are often justified by higher environmental standards that are not observed in other regions (UNECE, 2001b; World Bank, 2001). In such a situation, certification may be used to create a level playing field by restricting market access for timber that was produced using environmental standards lower than those in Europe.

Discussion and Conclusions

The development of private forests in CEE is impeded by their excessive fragmentation, restrictive forest management rules, restricted access to timber markets and limited resources of private owners. Forest restitution was undertaken to serve historic justice by returning forest property to their former owners. This process, however, has been carried out with little concern for sustainability and competitiveness of private forests. Restrictive forest management rules and increasing focus on environmental and social goals mean higher production costs at a time when public support for private forests is reduced. Fair market access also becomes a challenge in regions dominated by large industries on the demand side and state forests on the supply side, or regions with poorly developed markets making timber sales at competitive prices difficult. Finally, market-based initiatives such as certification are becoming increasingly common and may discriminate against small forest owners. Since forest owners are poorly organized, they lose the ability to exert more market power and trade in larger volumes through joint marketing.

While excessive fragmentation of private forests justifies government efforts supporting their consolidation, it is apparent that the minimum efficient scale of forest operations is currently unknown. These efforts will become more meaningful after determining how big a forest cooperative has to be in order to benefit from scale economies. It may be possible that in the current regulatory environment, private forest organizations need to approach the size of large state forest estates or industrial forests in order to reap any significant benefits, although this is unlikely. But on the other hand, even today large state forest estates are experiencing problems in remaining profitable.

Forest income is essential for private owners and their ability and willingness to invest into the management of their forests. Yet it is clear that CEE forest management rules have little in common with profitability and economic efficiency. To improve private forest management, these rules must be revised. It is surprising that while entire forest policies have been rewritten to give them environmental focus, technical management rules determining harvest levels and silvicultural treatments were left virtually untouched. These rules make timber growing unprofitable in both private and state forests, putting in serious doubt the long-term competitiveness of the forest sector and the provision of environmental and social benefits, which are frequently financed by timber revenues. Well-targeted government assistance may alleviate some of these problems, but will not suffice without making substantial forest management changes.

One approach that may work would be to rely on market forces in forests managed primarily for timber. Market prices can be viewed as tools providing information about resource scarcity that invoke appropriate market and investment responses. For this approach to work, some management regulations need to be relaxed. This requirement applies particularly to rotation length. Allowing for shorter rotations may help to stimulate private investment. In private forests, which fulfil important environmental functions, this approach is less likely to work, especially if forests provide benefits that the owners cannot capture. Such benefits may include wildlife habitat, watershed, soil conservation, and recreational and aesthetic values. These benefits may actually be a good reason for providing subsidies and incentives such as various easement programmes. If owners are not interested in management of forests that yield substantial environmental benefits, then buy-outs may be offered. This approach would result in confining subsidies to forests where they are most needed.

The policy process needs to recognize that private forests differ from state forests in many

aspects, including their size and management objectives. Policy makers need to decide what the role of state forests is and what the role of private forests is. Private owners have to be a part of the process. Policy makers need to determine what is feasible and desirable in private forests. They should clearly recognize that the behaviour of private owners who do not follow current regulations is caused not by their perceived greed or irresponsibility but by the lack of other options. If a firm cannot generate sufficient revenues from its operations, it goes out of business; if a private owner is unable to follow management rules because of insufficient forest income, then that owner stops carrying out those operations. If owners are expected to address environmental goals, then some compensation for them needs to be considered. But then we do not know how real the non-timber benefits from small private forests are. The situation of private forests also needs to be considered in the development of international agreements, standards and policies to make sure that private interests are represented and that private forests can also benefit from them.

Reforms of forest policy and ownership structure in CEE represent an enormous task. The range of policy options and tools available is as impressive. Yet very few studies exist which analyse benefits, costs and effectiveness of various policy instruments. We know little about changes that are most appropriate and the extent to which they need to be carried out in order to achieve policy goals. Low profitability of forest production is automatically justified by ecological benefits, whose extent is often unknown. It is yet to be clearly defined what sustainability or biodiversity protection means for a small private forest. New SFM dimensions present new challenges to the management of small private forests and require new regulatory and planning approaches, as well as a much better understanding of economic, social and environmental dimensions of SFM principles. At present, nearly all efforts are devoted to ecological goals of forest management. CEE experiences with private forests indicate that such a focus is probably too narrow and even counterproductive. Competitive pressures will continue to mount and it will be increasingly difficult to sustain viable forest operations. It is time to recognize that economic viability is also a necessary condition for making SFM a true success.

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