

Forest Certification in Poland

*Piotr Paschalis-Jakubowicz**

ABSTRACT

The forest management certification process in Poland was initiated in 1996 by the Regional Directorates of State Forests. The intent was to obtain confirmation of the high level of forest management in Poland and to satisfy the requests of timber products exporters, for whom having a certificate was a necessary requirement demanded by buyers (and later served as a marketing tool). Currently, nearly 85 percent of forest areas managed by State Forests are Forest Stewardship Council (FSC) certified. Estimates indicate that some 80 percent of lumber in Poland is FSC-certified, particularly timber for further processing, mainly into wooden construction fittings, pulp and paper, and furniture, and all special grade timber for processing into veneer and plywood. The present market situation of certified timber is driven by customer demand.

The greatest achievement of forest certification in Poland is its common use by State Forests, resulting from the documented compliance of the certification rules with Polish forest management rules. In some cases, associating the final effects of certification in Poland with the pressure of different interest groups was perceived as a negative feature of the applied certification methods. It was decided in 2003 to join the Programme for Endorsement of Forest Certification (PEFC) and to start building a certification system based on the PEFC rules, requiring development of a national standard consisting of principles, criteria and indicators for carrying out forest management.

* Piotr Paschalis-Jakubowicz,
Ph.D., Professor of Forestry
Warsaw Agricultural University
Warsaw, Poland
piotr.paschalis@wl.sggw.pl

INTRODUCTION

The problem of certification in forest management is controversial for many reasons, including its cost and benefits, trade and voluntary certification, labeling, transparency of rules, national sovereignty, domestic regulations, the scientific basis for defining and measuring sustainable forest management, the roles of governments, and injured professional pride on the part of foresters who are suddenly criticized and forced to test their professional and practical knowledge of the trade (Ozinga 2001, Thornber 1999).

At the same time, upward trends regarding threats to the natural environment, including forests, can be observed. The blame for this has been placed partly on forest management methods. So it became urgent to find a way out of the situation and several solutions to the problem have been considered. Certification adopted, as a rule, the development of an evaluation system based on appropriate indicators and criteria that would enable objective determination of the impact of the conducted business activities in forestry and its impact on the surrounding natural environment and elimination of incorrect solutions.

The decision to pursue such a system, supported with the guarantee of independence of the certifier, made it possible for the process to begin in Poland. It was believed that confirmation of the high level of forest management in the case of the dominant state forest property would be one of the essential arguments in favour of such a forestry model. Certification is a particular challenge for European and Polish forestry, where most forest areas are under uniform, strictly defined and centrally verified management. At the same time Poland was one of the first European countries that decided to carry out forest certification. Forest certification and Chain of Custody (C-of-C) of wood were introduced to Polish forestry by decision of the General Director of State Forests in 1995 as a sort of external, independent audit of forest management carried out by State Forests. Currently, nearly 85 percent of forest areas managed by State Forests are FSC (Forest Stewardship Council) certified (Certyfikacja 2000).

The whole process of forest certification was based on the Principles and Criteria for Natural Forest Management, a document consisting of 10 Principles and 52 Criteria (Qualifor Programme 1999a). These principles and criteria were described and explained carefully in a number of papers. The essential legal documents, directives and rules of forest management were reviewed and a detailed review was carried out in compliance with the rules in a randomly chosen Forest District. The practical verification of the principles and the system of task accomplishment was conducted following the QUALIFOR program, considering both environmental and socio-economic aspects (Qualifor Programme 1999b).

The principles of forest management carried out by State Forests fully meet all the FSC requirements; this is confirmed by the reports produced after the completion of certification. Simultaneously, in many sectors of Polish forestry and in specific directives for carrying out individual forest operations, sets of instructions and rules of proceeding, as well as in the timber raw material records, Polish forest management standards significantly exceed the level of requirements set by FSC.

This was the beginning of the socialization of the decision-making process in Polish forestry, which was done by voluntary and government organizations that were not professionally associated with forestry. It is thought to be one of the most important trends in the future development of multifunctional forestry.

BACKGROUND FACTORS

Historical Context

Forestry Problems

The contemporary concept of sustainable and balanced development of forests is referenced first of all to utilization of forest resources intended “. . . to manage and use forests and forest areas in a manner and at a rate ensuring the preservation of their regenerative potential in a long run” (Paschalis-Jakubowicz 1998). The implementation of the principles of this concept entails formulation and fulfillment of the following requirements:

- the guarantee that the socialization of the decision-making process in forestry will proceed;
- the assumption that the whole forest ecosystem should be the object of forest management;
- the assurance that the man-nature relationship is safe for the environment.

Conducting forest management requires not only professional knowledge of forest issues by a forest owner or manager, but also the implementation and verification in practice of the documented, described and transparent rules which, for the rest of the community, must be convincing proof of sustainable forest management. In the case of some practice areas (e.g., forest conservation, silviculture and forest management) we already have a lengthy history of their application and improvement.

Accession to the European Union with its documented, systematized, as well as science- and practice-proven rules and principles of proceeding, which are subject to thorough monitoring and mandatory implementation, is especially important for the current and future development of Polish forestry. Already having such a fully transparent system, the State Forests and the entire Polish forestry sector were convinced that those were satisfactory documents and should be fully acknowledged and approved by all interested parties, both professionals and the public.

The need for further development of theoretical work dealing with these issues seems apparent. Forest utilization, being an integral part of forest resources management, is closely related in time and space to other areas of forestry. Silviculture, forest management, and forest protection programs should be implemented according to a hierarchy of objectives that govern multifunctional forestry – meaning forestry that serves a broad set of social and environmental, as well as industrial, functions. Sustainable forest utilization should be a guiding principle in deriving direct and indirect benefits from all forest functions. In terms of

individual and societal development, forest utilization should encourage enhancement of the natural environment and impose restrictions on its excessive use (Simula *et al.* 2001, Rametsteiner *et al.* 2001).

Forest utilization, perceived in this way, encompasses the area of forest science and practice starting with the production process, technological preparation, raw material transport, characterization of wood and non-wood products and their practical use, as well as relationships between forest utilization and ongoing changes in forest environments including changes in the functions that forests serve.

The change in intensity of utilization of a given function served by a forest has a direct effect on other forest functions. Particularly important is the role of the production function in shaping indirect economic effects, which include:

- biomass production and energy accumulation, including wood and non-wood production (i.e., game, forest mushrooms, forest fruits from herbaceous cover, resin, herbs, bark, ornamental and Christmas trees, etc.);
- property protection and income provision;
- workplace welfare;
- land reclamation;
- various public services (water and air quality, aesthetic value, etc);
- social and recreational services.

The above-mentioned concerns are taken into consideration in formulating new principles of forest certification in Poland. There is no doubt that the importance of the protective and social functions of forests will increase as a result of changing societal preferences. The consequence will be an increase in production costs related to many products supplied by forests. But first of all it will substantially affect production and wood and non-wood harvest costs.

The primary requirements that have to be taken into consideration when formulating criteria for sustainable development of multifunctional forests are:

- a statement that forest utilization is a function of natural resources utilization;
- a statement that no conflict exists between the assumptions of the concept of forest sustainability and forest utilization;
- a cost calculation for sustainable and balanced utilization of multifunctional forests;
- defining principles for the development of forest work techniques and technologies that are safe for the environment;
- finding necessary solutions for an optimal utilization structure;
- adoption of methods for verification and monitoring of changes in utilized forest ecosystems within the framework of adopted and verified procedures including forest certification.

In practice, sustainable forestry, evaluated in accordance with the criteria and indicators of sustainable development, is evolving toward individual management of a single forest unit. This situation may entail limitations in making globally important decisions (for example, those concerning climatic changes) at a national or continental scale. Logically, the assessment of the degree of compliance for carrying out the management of a forest sub-district with the criteria and indicators of sustainable development should be the sum of all assessments on a local level (Dubois *et al.* 1996).

Furthermore, the popular concept of “joint management,” which was developed during the last decade of the twentieth century, also lacked a strong theoretical foundation. This concept promised “shared benefits” from joint forest management; however, as it quickly turned out, these “shared benefits” were understood differently by different groups and individuals and were not always able to satisfy general expectations.

Joint Forest Management is an attempt to put into practice one of the theses of forest utilization concerning greater public participation in decision-making processes in forestry. It seems that this concept implies that the direct inclusion of local communities in the full decision-making and program implementation process should be readily welcomed. This issue was of paramount importance for the successful introduction of the certification process in Poland. Another criticism of the commonly used criteria in sustainable forest utilization is that the present generation will not be able to fulfill their obligations towards future generations as defined by forest practices.

In practical forestry, forest management cannot guarantee that forests will fulfill all their functions or balance the intensification of these functions in a given time and space. Therefore, we need to rely even more on the proven criteria and guiding principles in forest management and forestry, which should be constantly monitored and re-evaluated.

Additional criticism against sustainable forest utilization is that it is difficult to anticipate future generations’ expectations regarding the condition, appearance and diversity of future forests. How should one make a judgment call on whether an individual tree or portion of a forest deemed beautiful by us will be considered equally beautiful in 150 years? Our present sense of beauty and use of forest or trees may not be the same as that of our ancestors or descendants. Unverifiable and arbitrary judgments should be hence excluded from certification systems.

Recent years have brought to light new data on the impact of forest utilization technology on forest environments. This has allowed for the construction of new models of forest machinery and tools and the development of new work technology. These new solutions brought a new term to common use: “environment-friendly technologies”. Such approaches force us to make a full economic and operational analysis of the timber procurement process, where the requirements of ergonomics and work safety take priority over other considerations. Hence, we are dealing with an a priori assumption that a hierarchy of criteria must be maintained, and that is why the certification system should be flexible.

Traditional/Existing Policy Responses

The contemporary concept of multifunctional forestry incorporating sustainable use of forest resources has a strong tradition in Polish forestry. The evolving approach to forest utilization, to start with the utilization of simple raw material through the maintenance of sustainable wood production and sustainability of forest utilization, has finally resulted in an understanding that the development of all functional aspects of forests is necessary.

This basic problem with the understanding of the nature of forest utilization stems from the sense of having an unlimited forest resource base in Europe, including Poland. Moreover, it was based on a belief that conditions guaranteeing continuous forest growth were met. Forest utilization was strongly encouraged by forestry science. The Brundtland Commission Report of 1986 undoubtedly contributed to making the necessary shift in thinking about forest utilization. Work by the Forest Commission in Strasburg in 1990 has furthered the new understanding of forest utilization, while placing special emphasis on forestry (Paschalis-Jakubowicz 1995).

Entries made to the Agenda 21 and Forest Rules during the UN Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, which formulated basic principles for the continuous and sustainable development of forestry, were of great importance to forest users. Unfortunately, some of the issues regarding the objectives and scope of forest utilization were left unresolved. It is worth noting that the points of debate concerning the scientific grounds for certification were the weakest components of the Earth Summit conclusions.

The mid-1990s in Poland were characterized, on the one hand, by intensive restructuring from a centralized to a market economy and, on the other, by maintenance of the consolidated structure of the State Forests, which was deemed capable of securing basic environmental safety for the entire country.

The Forest Act of 1991 determined the three basic functions of forests – productive, ecological and social – and made them equal in significance. Amendments to the law in 1997 recognized that not only the forest stand, but also the whole forest ecosystem, should be the object of forest management; further development will be oriented towards strengthening the ecological and social functions of forests (Szujewski and Paschalis-Jakubowicz 1997).

Moreover, Poland's anticipated accession to the EU, the implementation of state forest policy, the ratification of the Climate Convention, the fulfillment of obligations under the Biodiversity Convention, MaB, and others had broad implications for the timber industry and forestry, with significant, environmental impact on Polish Forest Policy.

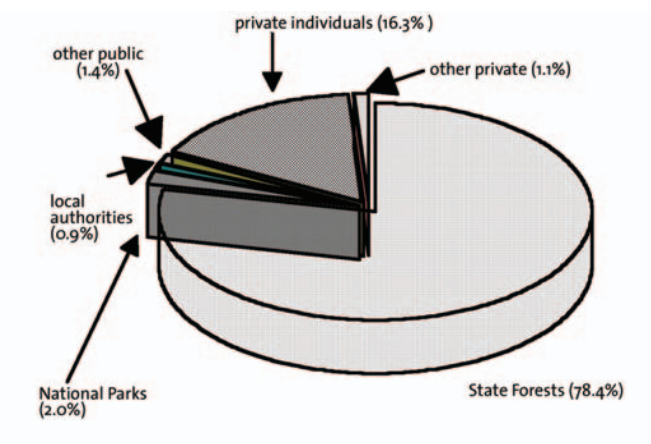
Also important to understanding the consequences of using the adopted methods of timber and non-timber forest products harvesting are legal regulations in Poland that relate to both ergonomic and economic issues and forest utilization in the broad sense of the term.

Structural Features

Ownership and Tenure

Approximately nine million hectares of Poland is forested; this is slightly under 30 percent of its total land area (FAO). Publicly owned forests predominate, accounting for 82.6 percent of the total forested area. Within this, 78.4 percent is under the management of the State Forests. The remaining state-owned forests are components of National Parks and local administrations (Figure 1).

Figure 1 Forest ownership structure in Poland

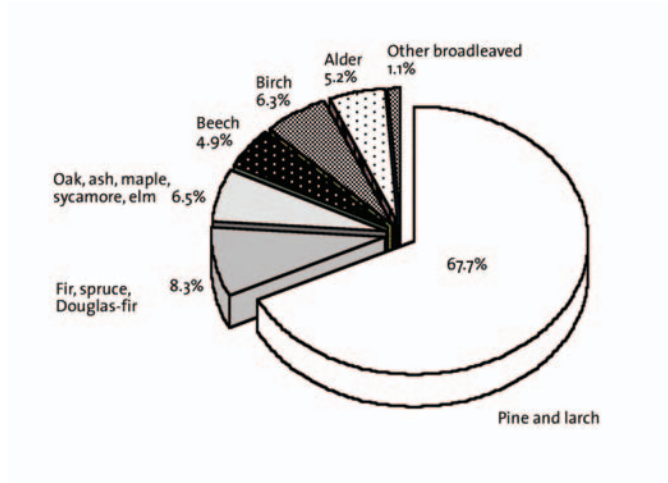


Source: State Forests Report 2002

Privately owned forests in Poland account for approximately 1.5 million ha and are managed by nearly 1.5 million owners (Forest Community 1999). The actual ownership structure of forests, with the prevalence of State-owned forests and more than 1.5 million of small-scale forest holdings (with an average size of a holding of approximately 1 ha) was at one time considered undesirable by some groups of politicians and citizens. They argued for a change in forest ownership structure, pointing to the experiences of neighbouring countries in which the privatisation and restitution of forests had begun. But this position has not prevailed.

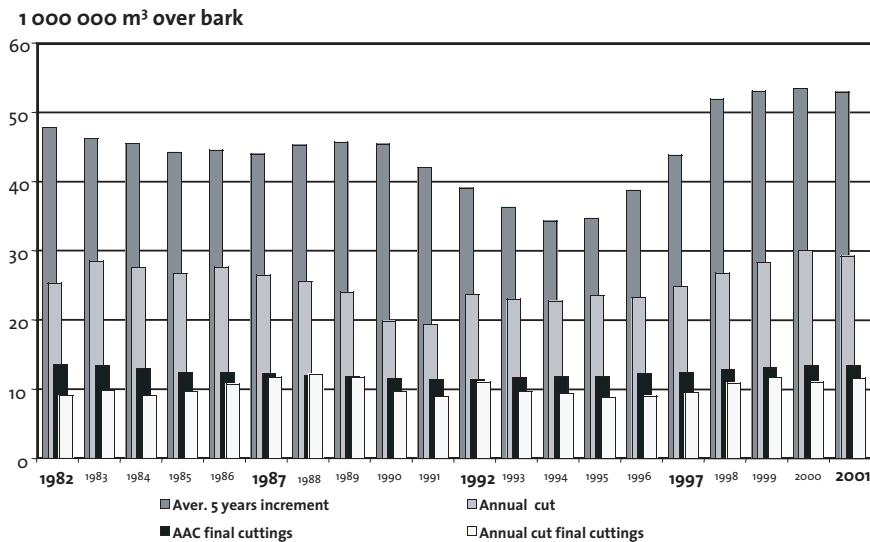
Conifer species dominate in Poland, accounting for 77 percent of its forest area. Overall, coniferous forests comprise 66.6 percent of Poland's forest area, broadleaved forests 15.4 percent and mixed forests 18 percent (Figure 2).

Figure 2 Dominant tree species



The timber resources of the State Forests continue to increase. They reached 1.6 billion m³ of merchantable timber over bark in 2003. Including the resources in private or local authority hands, the overall reserve (standing volume) in Poland's forests is an estimated 1.9 billion m³ of merchantable timber over bark. The amount of timber harvested in relation to the increase in volume in forests is still very low, amounting to approximately 50 percent of annual volume increment growth of the standing timber resources (Figure 3).

Figure 3 Increment, allowable annual cut, and annual cut in State-owned forests in Poland, 1982-2001



Source: State Forests Report 2002

Unlike in many European countries, forestry in Poland is characterized by greater harvest of dead trees with a simultaneous marked contribution of the highest quality assortments of wood: veneer, plywood, resonant-wood and construction-wood. In addition, the accumulated impacts of industrial pollution and the long-lasting drought in Polish forests have led to the intensive self-thinning of trees. Thus a large amount of timber is harvested from standing dead trees.

Markets

The free market situation in Poland required the transformation of the timber industry, which largely lacked the capital investment. The timber industry had to undergo a difficult adaptation period, dearly paid for with many bankruptcies and a general financial collapse. The timber industry and the recipients of raw materials and semi-finished and finished wood products experienced great payment difficulties. Another difficulty was an unstable relationship between forestry and the timber industry. The timber industry, having to accept tough free market economy laws and having neither the capital nor economic backup, looked to the National Forestry Agency for capital, which it could not provide at the time.

Most high-grade Polish timber, both in the form of veneer and ply sheets, is exported to the EU countries, while raw wood and unbarked wood goes to the EEC countries. Imports of raw wood and barked wood are highest from the EEC countries, while veneer and ply sheet imports are highest from the EU countries. The main importers of Polish raw and barked wood are Austria, Czech Republic, and Germany; sawn wood of a lower quality class goes to Germany, Italy and the Netherlands. Veneer and ply sheets and high-grade sawn wood are sold mainly to Germany and Sweden, while other wood profiles are sold to Germany, France and Spain. Imports of raw barked and unbarked wood come from Lithuania, Slovakia and Ukraine, while sawn wood comes from Ukraine, Germany and Russia. Veneer and ply sheets are imported from Germany, Finland and Sweden, other wood profiles from Sweden, Germany and Estonia.

The share of non-wood products both in exports and imports is inconsiderable and amounts to several million USD. These include forest fruits, venison, forest mushrooms, and Christmas trees. The major importers of non-wood products from Poland are Germany, England and Italy. Poland imports from Ukraine, Belarus and Russia annual imports of round wood of up to 750,000 m³, and exports approximately 350,000 m³. Annual harvest of forest mushrooms (data from 1996) was 940 tons, and of forest fruits was ca 5,683 tons.

In Poland, the timber industry uses 27-29 million m³ of wood per year. Forty-six percent of wood is used in production of sawn wood, 27 percent in production of wood-based panels and 20 percent in pulp and paper manufacturing. In 2002 the wood industry, furniture industry and pulp and paper industry accounted for 2 percent of the national GDP; the forestry sector accounted for 0.23 percent. In 2002 about 275,000 people were employed in the Polish wood sector and about 60,000 people in the forestry sector.

However, the Polish wood market is shaped by exports on a large scale, especially by furniture exports. The share of exports in relation to production is the following (Figure 4):

Figure 4 Share of exports and imports in the production

	Exports	Imports
Sawnwood	24%	15%
Wood-based panels	30%	18%
Wood pulp	3%	37%
Paper and paperboard	49%	66%
Furniture (in value)	87%	13%

Source: Central Statistical Office 2003

In 2002, the value of wood products exports (including furniture, pulp, and paper) was 5.5 billion USD and it constituted 14 percent of Poland's total exports. The proportion of imports was 25 percent. Foreign markets receive 49 percent of wood products, and furniture is the third group of goods of the highest value of all Polish exports (about 7 percent).

Lack of a firm strategy as to the appropriate size of a wood company or the direction of wood processing (e.g., towards a larger number of sawmills, or a larger number of OSB or MDF board factories) had a crucial impact on the timber market strategy adopted by State Forests. Uncertainty about the volume and trends in the demand for timber raw materials called for actions aimed at the elimination of risks on the timber market, both for forestry and the wood industry. Other actions, such as a new marketing strategy, agreements between forestry and timber sectors, promotion of timber, also stimulated support for the broadest possible introduction of certification.

THE EMERGENCE OF FOREST CERTIFICATION

Initial Support

At the end of 1995 a proposal was submitted to the State Forest Agency by firms importing wood from the State Forests to carry out certification of those forests at their expense. The offer provided that the certification process would include review of the basic legal documents, directives and principles governing forest management and production and also verification of the degree of their practical accomplishment. This offer found support among Polish wood buyers producing various products for export, who claimed that their products would have some advantage over competing products in the wood market if they were certified and labelled as coming from properly managed forests. SGS-QUALIFOR soon visited Poland to assess existing forest operations against the Forest Stewardship Council Principles and Criteria (FSC 2003, Certyfikacja 2000). In this way, Poland became the first European country whose state-owned forests were subjected to FSC certification. The process was carried out

by SGS QUALIFOR, a certifier based in England, in compliance with procedures of the Quality Forest Management Programme of SGS Forestry. Initial FSC certificates were issued in 1996.

In undertaking certification, it was assumed that an independent organization was entitled to determine, on the basis of a verifiable procedure, that forest management complies with sustainable forest management rules and acts in favor of the community and forestry. It was also assumed that such an organization could be the main instrument of improvement of forest resource management principles. These assumptions can be disputed, yet they stem first of all from the mounting expectations of forest product users regarding assurance of forest conservation. The preparations and consultations concerning certification principles in forestry took several years. They were conducted in close cooperation with scientists, politicians, various groups of NGOs, and forest practitioners. The main premise on which the entire undertaking was based referred to the necessity to support legal activities in favour of environmental protection, including both business activities in forestry and in the regulations concerning use of raw materials, semi-products and the products directly harvested from forests and subject to further use or processing. At the same time it was acknowledged that it was relatively easy to perform evaluation and certification of operations in forest conservation or silvicultural areas. The biggest controversy concerned the rules and procedures pertaining to the methods of evaluation and control of forest utilisation, specifically of raw material harvesting.

The adoption of certification also had roots in changing public opinion. A segment of the public and certain community groups in Poland began perceiving forests and forestry as areas whose management should be more open to public scrutiny. At the same time, it was believed that certain forestry actions should be made subject to verification by external agencies. These factors are as follows:

- The effect of an accumulation of industrial pollutants and their impact on forests was reflected in the form of defoliation and dieback of trees.
- A notable increase in timber harvest in the form of sanitary cuts to 5 million m³ was observed in the 1990s, of which 66 percent was deadwood. This fact was used in campaigns conducted by various groups as an example of the errors committed by forestry. Certification was therefore an argument for countering such opinions.
- The growing pressure of society and non-governmental organizations (NGOs) demanding more rigorous protection measures and stopping activities and forest projects which, in their opinion, are not in compliance with the principles of sustainable development of forests. Pressure from non-governmental groups was exerted in an indirect way, most frequently by placing materials undermining the forest administration's activity in the press, radio and television, or indirectly, by organizing street protests, happenings and distribution of leaflets, pamphlets, open letters, etc. At present, some hundred non-governmental organizations, including international ones, are registered in Poland.

To understand the whole complexity of the issues associated with the introduction of forest certification in Poland, the historical context is required. Bearing in mind that the system was applied to the forests belonging to the State Treasury, the analyses of the reasons that led to it can be helpful in popularising the certification rules.

As a result of the controversy aroused by the FSC system, particularly among private forest owners in Europe, and due to the lack of reference in the FSC system to the national standards of carrying out forest management in Poland, it was decided in 2003 to join the PEFC (Programme for the Endorsement of Certification Schemes) organization and start work on building a certification system based on the PEFC rules, requiring development of a national standard of principles, criteria and indicators for carrying out forest management.

Institutional Design

The legal basis for forest management activity lies in the Forests Acts of September 28th 1991 (Official Journal of Laws of 2000, No. 56, Item 679), the Regulation of the Council of Ministers of the Republic of Poland of 6 December 1994 concerning detailed principles of financial management in the State Forests (Dz. U. No. 91, Item 444), as well as other regulations and orders issued on the basis of the Forests Acts by the Minister responsible for the supervision of the State Forests, the Minister of the Environment.

The State Forests manage forests that are the property of the State Treasury (with the exception of National Parks, Treasury-owned agricultural property resources, and resources that are the subject of perpetual leases). Within this framework it engages in forestry, as well as the management of land and other fixed and mobile assets connected with it. Organizational systems and management of forest resources, based on principles of sustainable development and handled centrally by State Forests, might appear hermetic to an outside observer.

The main task of the State Forests is the pursuit of sustainable forest management in accordance with the forest management plan, a document drawn up individually for each Forest District in reference to ten year cycles of production, in which the objectives for each fragment of forest are detailed, along with the means by which these are to be achieved. A further element is a nature conservation programme setting out methods by which forests, genetic resources and landscape features are to be protected and the needs of science are to be met. Rational management should in turn assure the protection of soils and land particularly prone to degradation or damage, or of special public significance, as well as surface and underground waters. A further important aspect of forest management is the production of timber and forest by-products. Specifically, the State Forests engage in forest management in accordance with the principles of the universal protection of forests, the assured persistence of forests, the continuous and sustainable utilisation of all forest functions, and the enhancement and augmentation of the forest resource (Rykowski 2003).

Privately owned forests in Poland present special management problems. Apart from a few forest communities (no more than five), the remaining 1.4 million forest owners conduct forest management largely on their own, although technically under

supervision by state agencies. Key factors inhibiting the efficiency of forest management on privately owned lands include extensive (on the European scale) forest fragmentation, lack of full information on the volume of resources, and unplanned timber harvests or low economic activity of forest owners. State Forests therefore indirectly supervise private forests using the same regulations, rules and instructions as apply in the State Forests. These focus primarily on balanced forest development, considering the criteria and indicators adopted during the Helsinki Conference. Although ten year Forest Management Plans are being developed for all State Forest areas, about 30 percent of other ownership forests do not have such plans.

Standards

When the State Forests were certified, the FSC was the only program offering services consistent with Polish policy. FSC procedures require compliance of forest management activities with widely accepted forestry guidelines, applicable laws, property ownership structures, and local community rights. Chain of custody verification and labeling also has been carried out separately. Certification is essentially a procedural affair. But the choice of standards – and of who should be certifying whom – has become politically contentious. In fact, however, the certification standards refer to the realization of state forest policy and to protecting the interests of all the groups with forestry and the timber industry. These concerns are at the heart of most arguments concerning certification. (WWF Guide 1996) Standards are based on documented agreements, covering technical specifications/criteria, made to ensure that processes (such as forest management), products or services are fit for their intended purpose and developed by stakeholder participation.

All standards, criteria and indices used by FSC were in compliance with the requirements set forth by the applicable Polish regulations for the management of a sustainable, multi-functional forest. No problems with definition interpretation or lack of definition clarity existed, and no criteria or indices were absent during site inspections. On the contrary, FSC certification guidelines for forest management seem to be clear and simple when compared with some of the more “sophisticated” methods in use. This assessment is applicable to all the guidelines with no exception. Several examples are pertinent:

Local Community Rights. The general law of the Polish Republic, including forest law, grants each Polish citizen equal rights. However, certain historic provisions of the Royal Law are still in force, although they apply only to certain individuals. Some individuals retain special rights to fish within the territory of National Forests because they were granted those rights by Royal charter in the 17th century. Polish law also guarantees general access to forests of all kinds of ownership, and the collection of mushrooms, berries and forest fruits for personal needs is free of charge.

Development Planning. Forest planning schemes for some forested areas have a documented continuity spanning 280 years. The number of criteria and indices for such schemes exceeds FSC requirements.

Plantations. In the climate conditions of Poland, forest tree plantations have never been promoted on a large scale. Plantation forestry is also seen as inconsistent with long standing European forestry traditions and with the development of multifunctional forestry. On the other hand, it is extremely difficult for many European countries including Poland to accept the idea that 10 percent of its forest area must be excluded from utilisation and left as a virgin fragment of forest. The necessity of maintaining biological diversity of forests and protecting natural resources may be sufficient justification for this requirement.

Maintaining Natural Forests. Europe has an exceptionally small area of natural forest. Poland is seen as one of a few European countries that can boast of having close to natural forests. Principles applied to protect this type of forests are drawn up and their implementation continuously monitored.

After the first forest certification in Poland, successive certifications were implemented on a still greater scale. Moreover, positive appraisals of early certifications created a more favourable atmosphere for later ones, despite costing the National Forests ever-higher fees. In the years since 1996, almost all of the forest areas in Poland administered by State Forests have received FSC certificates.

THE REACTION TO CERTIFICATION

Forest Policy Community and Stakeholders

The following discussion is based on eight years of experience with FSC certification in Poland. It should be clearly understood that reactions to certification concern only the results obtained during audits in the State Forests. This did not in any way stifle the heated discussions and polemics regarding other certification systems waged in various communities and professional groups, including researchers, journalists, foresters and state administrations of various levels, with one reservation: they all related exclusively to the State Forests. No position on this question has been voiced by other forest owners.

In practice, there have been no significant formal or organizational obstacles to carrying out certification. Credit for this goes to solid preparation for each phase preceding the on-site audits. This involved production and distribution of background information, pre-start consultations at all decision-making levels, and an in-depth analysis of specific rules and methods to be used in the certification process. A very important element in securing acceptance of certification results was the presence of forestry professionals on the audit team.

With all these preparatory actions, and following extensive debates in the trade press, foresters became comfortable with certification rules and procedures. When the preliminary audit results were announced, the forestry community of Poland fully embraced the idea of certification as an additional documented tool for monitoring the state of forest management. It also understood that submitting to

“external control” legitimises the approach to forest management in Poland, since the audit applied to the real time activities of routine forest operations. The fact that the final conclusions of the certification process contained no recommendations for changes in forestry administration and management in Poland added to the positive reception.

The most frequently voiced reservations to certification conducted according to FSC rules concerned the following issues:

- Why is certification conducted on the level of small forest management units and its results not automatically applied to larger units (Regional Directorate of State Forests) administered in an identical manner? The problem boiled down to a very logical train of thought: since every square meter of state forests in all of Poland is subject to the very same administrative procedures and forest management rules, why is a certificate earned in any forest segment in Poland not tantamount to a certificate awarded to all administrative units of the State Forests?
- No satisfactory explanation was received regarding the disagreement that occurred during certification of Białowieża Forest woodlands. In both Polish and general European public perception, these woodlands are associated with the commanding stature and beauty of historic primeval forests and woodlands covering the breadth of Europe in early medieval times. The group certifying the woods of Białowieża Forest administration districts did not recommend awarding a certificate for these woodlands. Foresters considered this as blatant overstepping of the certification rules and procedures under the sway of certain ecology groups and political pressures. In reality this had no importance whatsoever, both for the future of Białowieża Forest and the manner of managing its forest resources, nor did it improve relations between the “eco-minded” groups and the forestry community. The only consequence was a tarnished reputation for major international organisations and associations, but it had no impact on future relations with the “eco-minded” communities in Poland. It also did not have a significant impact on future forms of FSC cooperation and contacts in Poland.
- Should forest areas be administratively subordinate to State Forests but managed by, for instance, university forestry faculties, and, serving as forestry research and experimental stations, be subject to certification. This approach provoked much debate and general disapproval, since it is evident that, given the research nature of these facilities, conduct of forest management in experimental stations does not have to and frequently does not meet all criteria of sustainable development.
- Private and other types of forest owners have shown complete disinterest in certification.

- The absence in Poland of certification standards and procedures other than the FSC was seen by the state administration as a situation that should be changed. It was then proposed to develop certification standards according to the PEFC system (PEFC 2004 a,b). As a Pan-European and, currently a global initiative, the PEFC model fits perfectly into the “free market and free competition” concept, and its reliance on national standards is quite attractive. It seems likely that the establishment of a Polish PEFC standard will lead to some parity between the PEFC and FSC systems in the near future (Valtanan 2001).
- The virtual absence of information about potential financial advantages to forestry of having been awarded certification. The meagre information, which came from producers of wooden window and door fittings and flooring panels, was often interpreted, particularly in the initial phase, as allowing the timber-processing industry to reap undeserved profits from the efforts of foresters. Hence it was often suggested that possession of the certificate should be grounds for increasing the price of timber.
- It should be noted that despite having the entirety of forest management covered by certification, the lack of interest from buyers of the raw and semi-processed materials and by-products of forestry (e.g., mushrooms, berries, honey, etc.) means that this important segment of forestry is still not included in the market as a certified product.

Forest Owners

Research on certification and eco-certification conducted since 1993 by the SGGW Forest Utilization Faculty under this author’s guidance shows that the present ownership structure of forests in Poland does not provide mechanisms for inducing private forest owners to seek certification. At the same time, it appears that owners of community forests should soon show interest in certifying their forests. The latest research (results from 1999-2000) concerning the timber market in Poland and growing interest shown by private forest owners subscribing to forest owner associations clearly support such development trends.

Current Status of Forestland Certification

To date, FSC is the only organization involved in the certification of Polish forests. The first cycle of certification of the forests administered by the State Forests in Poland was nearly complete as of early 2004, with the sole exception of the Regional Directorate of the State Forests in the south of Poland. The reasons for this last exception involve procedural issues reflecting errors committed in contract negotiations, and are not substantively related to forest management. In several Regional Directorates, a follow-up audit was done and the certificate validity was extended for another five years, and in other Regional Directorates work is underway to prepare for signing new contracts.

The awarded certificates have equal status in terms of any type of forest operations in Poland, both in terms of forest protection, silviculture or utilization of forest resources. There is also no distinction made between forestry operations partly subsidised by the state budget (such as afforestation or reforestation of woodlands) or State Forests financed operations commissioned to outsourced contractors.

Representatives of the wood industry still hold the opinion that it is necessary that the timber raw materials purchased by them have a certificate. This is true for both the large, international companies (e.g., Intercell, IKEA, etc.) and small plants exporting their products. Such opinions are presented in the trade literature and by Polska Izba Drzewna (Polish Timber Board).

In late 2003 intensive efforts were launched to develop certification standards consistent with the rules, criteria and indicators applied by Programme for Endorsement of Forest Certification (PEFC), by drafting its own Rules for the Verification of the Chain of Custody of Wood within the Polish Forest Certification Scheme (Peter 2003).

Current Status of the Certified Marketplace

Certification was introduced in Poland with the acceptance of State Forests, but mainly under pressure from private business, which was procuring and processing timber and exporting finished wood products to other countries. It is estimated that at present some 80 firms processing wood in Poland have chain of custody certificates issued by FSC. The State Forests remain neutral in this respect, neither encouraging nor discouraging timber buyers from seeking C-o-C certification.

Estimates indicate that some 80 percent of lumber in Poland derives from FSC-certified operations, particularly timber for further processing, mainly into wooden construction fittings, pulp and paper, and furniture, plus all special grades timber for processing into veneer and plywood. The present market situation of certified timber is driven by customer demand, even though only 80 of the timber processing companies hold C-o-C certificates. Buyers interested in procuring timber from State Forests receive assurance of FSC certification of the State Forests involved. All of the strategic timber customers of State Forests (in total over half of annual wood production), such as Castorama, IKEA, Leroy Merlin, OBI, British Premium, Intercell, etc., demand certificates as a pre-condition for contracts. Smaller scale buyers of wood operating in local markets, and manufacturers of specific wood products with export contracts, need C-o-C confirmation.

At present, the real bottleneck to increasing the number of firms with C-o-C certificates is the shortage of timber processing firms capable of meeting the applicable rules and procedures. As a rule these are small-scale woodworking operations, without demanding customers, applying obsolete processing and production technologies, operating in local markets, within a limited range of products.

It can be said that certification conducted according to FSC rules and standards has been accepted, embraced and universally adopted by State Forests. Efforts are well underway in FSC to develop Poland-specific criteria and proper forest management benchmarks.

EFFECTS OF FOREST CERTIFICATION

Power

No systematic research has been carried out on questions of local community attitudes to forest certification processes in Poland. Spot surveys, observations and comments from the Association of Foresters and Wood Technology as well as Regional Directorates indicate that earning certificates by the State Forests in many instances exerted a positive impact on attitudes of civic interest groups toward forest administration; but it was just as often claimed that it had no impact whatsoever on forest administration. This divergence of opinion was due either to closer contacts of the two communities during the audit or, in part, to a realisation that this is a process with final effects reaching far beyond the local perspective on environmental issues. The need for involving public opinion, or at least segments of it, not so much in the decision-making process, but rather in assessing the quality of forestry management, has most certainly resulted in reducing tensions between the foresters' community and local administration, NGOs, and the media.

On the other hand, although one should not overestimate the significance of certification in controlling corruption, acceptance of external review of the manner and method of forest management appears to be a very important consequence of changes taking place through the certification process. This is integrally bound up with free movement of goods and service requirements, where an important element in the forest/wood scene is a C-o-C document, potentially aiding development of both sectors. This should be noted on both the local and on the national scale. The above assessment is based on data concerning turnover and the principles of sales of timber, analysis of documents pertaining to illegal harvesting of timber, as well as to documents of the Central Statistical Office.

Social

In the social sphere, the impact of certification in Poland is very difficult to assess, certainly requiring more time and application of research tools from the arsenals of sociology, in the application and interpretation of which this author does not feel qualified. There certainly have been positive changes in Polish society in the communication of objective information and education regarding certification and its relation to the Brundtland Commission Report of 1986 and the 1992 Earth Summit in Rio de Janeiro, as well as results of the Ministerial Conference for Protection of Forests in Europe (MCPFE) held in Helsinki in 1993 (Walder zum Leben 1996).

This awareness allowed for avoidance of serious conflicts, at least dulling the edge of attacks against forestry and foresters, occurring over the past fifteen years or so. Attempts by non-governmental organizations to change forest policy largely failed due to their lack of arguments rooted in the forest-related experience. Even proposals that could have been proven on the basis of research or experience could not be and were not unconditionally accepted by the forest administration.

On the other hand, demands by local communities to safeguard forestry jobs, collect local taxes from State Forests, and maintain public access to forestlands were bolstered by the certification process. In these areas certification has also had the effect of exacerbating potential conflicts. Examples of problem areas include the requirement to reduce the volume of timber harvests, exempt large fragments of forests from economic exploitation, or leave quantities of dead wood in the forest. One of the weakest points in the certification rules, not just there, but in the whole model of sustainable forestry, is the question of ensuring forest sustainability while fully respecting the demands posed by local customs, regulations, and real social needs of access to forest resources. Insurance of public access and use of minor forest products, in the form of collecting mushrooms, berries and other forest floor produce for personal needs, is guaranteed by the Polish law of the land, and certification rules do not change anything in this respect. Nonetheless, procuring lumber, even for the personal needs of local residents, is possible only in the form of purchase.

An important additional trait of certification standards is their relative clarity as regards interpretation. Their terms are universally acceptable and, hence, also acceptable to local communities. This is also linked with educational aspects, which bond eco-minded groups much closer to the cause of protecting their shared environment than to any other cause.

Economic

At present, appraisal of economic effects must be limited to registering certain developments, without quantifying them. However, studying the documents from the past five years published in the reports of listed companies, wood-processing plants, and official statistics, including transaction prices on the timber market, the timber harvest volume and changes in the technology of work while performing various forest operations, wages for workers and general labour costs, the following can be stated:

- It is certain that the sale of lumber has been considerably facilitated by meeting the certification requirements demanded by buyers of semi-processed and processed wood and wood derivatives;
- The present market for wood in Poland does not register changes in the price level of lumber sold from forests, irrespective of whether or not it is chain-of-custody certified;
- The need for strict observance of restrictions on the use of pesticides, herbicides, application of shields, ergonomic barriers, work safety devices and gear, etc., increases production costs and requires application of advanced technology and techniques. From this perspective, the costs of lumber production have increased.

Environmental

One of the fundamental dilemmas, which should be addressed when assessing certification, concerns the question of whether or not environmental objectives are being

met. The model of forest management applicable in Polish forestry practice answers this question in the affirmative. If this is to be accepted, then one could claim that certification will add nothing new in this respect. But, even in Poland, one can perceive positive changes in forest management resulting from introduction of a certification system.

First of all, certification provoked extensive debates in the forestry community as to whether provisions of certification rules were well founded and whether they were reflected in the respective regulations governing conduct of forest management (WWF 2003-2004). Such discussions were and are being conducted both on the level of Parliamentary Committees, the Council of the Ministry of Environment, State Forests and scientific circles. Many of the outcomes of these discussions were reflected in the documents describing the principles of proceedings in forest resource management in Poland (Acidy i instrukcje 2003, 2004). Second, a parallel circuit has been created to allow for checking the efficacy and appropriate design of actions to safeguard forest ecosystems. Thus, capacity for environmental learning has been strengthened. Third, certification was one of the triggers for discussions regarding heterogeneity of forest sites, discussions that were badly needed in the forestry community. Fourth, the volume of harvested timber is independent of certification, just as it is immune (to a considerable degree) to the rise or decline of market demand for wood, because these volumes are dictated by the state and the needs of the forests themselves.

CONCLUSION

Summary

Rising threats to the environment, including forests, partly due to forest management methods, have necessitated a search for additional means for the legitimization of forestry and the wood raw material delivery chain. The initiative of wood product manufacturers and buyers was a strong and positive impulse, significantly promoting and supporting certification. These desires for public acceptance and market strength were the primary factors facilitating introduction of certification to Polish forestry. A highly advanced identification of the proposed certification standards, criteria, and indicators with the approved paradigm of sustained, multifunctional forest management is likely to be the most important factor promoting certification in Poland in the future.

If the status of a certificate obtained by a forest owner – regardless of the legal form of forest ownership – were to equal the requirements of national standards for forest management and, additionally, were an efficient tool for the promotion of forest raw materials, semi-products and products, then a substantial growth in the interest in and impact of certification would occur.

The greatest achievement of certification in Poland is its common use, resulting primarily from the consistency of the certification rules with the forest management rules in Poland. Efforts to attribute the effects of certification in Poland to the pres-

sure of different interest groups is perceived as a negative feature of applied certification in many quarters.

Certification is not and cannot be a panacea for all the challenges of forest administration and management. It cannot solve the problems resulting from processes such as natural and controllable species succession; the necessity of converting forest stands and removing ecological and industrial disasters; managing land resources in unbalanced management conditions; extremely complex activities aimed at preserving biological diversity; and many other specialist solutions. To expand its effectiveness in the future, certification should move in the direction of setting framework standards based on specific, detailed references to a given country or even a given region.

Roadblocks and Challenges

Documentation of the above issues is very impressive and the author's views and opinions reflect the richness and complexity of the subject matter that forestry has to deal with (Paschalis-Jakubowicz 1996). The author mentions forestry as the primary agent since the importance of the problem can only be seen from the perspective of forestry, and not from a single sector of the timber industry, since it represents the long-term actual interests and aspirations of the citizens of our country. This is because forestry acknowledges and understands the diverse and irreplaceable role forests play in our lives. This apparent unfairness in treating the timber industry and forestry is illusory, since the strength of this union lies in the fact that they are united on many levels by common interest.

The analysis of findings published in the literature and my own research results lead me to outline a few problem areas where the timber industry's and forestry's interests converge and where they depart. I have focused on problem identification and not on ready-made solutions, believing that the evidence supporting the claims will point further discussion in the right direction and help create a basis for appropriate agreements.

The main thesis of this study is that forestry and the timber industry play strategic roles in the development of the State, and any rulings must be consistent with a strategy for the balanced development of our country in its current phase. An assumption must be made that certain forms of cooperation between the timber industry and forestry will be and should be induced by the State.

The collapse of several or even one branch of the timber industry (especially lumber) in Poland could result in deregulation of the Polish timber market, with consequences that are difficult to foresee. In particular, it could lead to the removal of wood from certain segments of the market and could stimulate more wood substitution in the market. It could also lead to a sudden increase of imports, stimulated by competitive prices and EU resolutions on the flow of goods and services and free trade, as well as the lack of sale opportunities in Poland for certain raw wood materials according to dimension, quality, or type of wood.

The size of demand for raw wood materials in Poland will be determined mainly by the country's economic growth conditions, and in particular, by the growth of forestry and the timber industry.

Poland's participation in the EU structure will have a certain impact on the way our timber resources are utilized, both in qualitative and quantitative terms. It should be expected that the EU member countries also will have to make certain readjustments in the extent to which they utilize their own raw materials base. Unfortunately, one should expect a trend towards unfavorable change (prices and harvesting volume) in certain current and future EU member countries (Sweden, Finland, Austria, Germany, the Czech Republic, Slovenia, Romania, Bulgaria) and for Polish forestry. Leaving the above decisions only to the forest and timber industry decision makers may not be the best option and may not result in optimal solutions.

Certification was proposed as a system whose aim was to unite, not to divide, and it was seen as a solution that could be easily accepted by both producers and buyers. Meanwhile, in Poland, somewhat later than in other European countries (especially the EU member countries), a more intensified operation of external factors on forests and forestry began.

The strong pressure of NGOs has led to social conflicts, especially on the local level. Opinions presented in the mass media have undermined both the rationale of forest management and scientific bases of forestry. The two largest non-governmental organizations operating in Poland for many years, the Polish Forest Society (operating since 1882) and the Association of Engineers and Technologists of Forestry and Wood Processing, were not able to settle these disputes despite their intensive publishing and educational efforts. This situation was further complicated by other factors, such as the lack of representation of individual forest owners in local and state administrations; difficulties in defining and classifying national parks, natural protection areas, nature reserves, and legal documents such as cadastres in Poland according to the European standards; the lack of development planning schemes; destabilized timber markets; inflation; an unstable government in Poland, and many other reasons.

There is no doubt that one of the serious problems forestry faced was the sense of harm and injured professional pride on the part of foresters, who, convinced of their high qualifications and good forest management that met all the requirements for sustainable forestry according to the Helsinki criteria, having secured professional and social standing, were suddenly criticized by different groups of NGOs and individual environmentalists and forced to test their professional and practical knowledge of the trade.

It was then decided at the level of the former Ministry of Natural Resources Protection and Forestry and the General Directorate of the State Forests that State Forests needed to introduce a certification system for forest management, provided that the certification team would consist of independent members having an appropriate background and knowledge of forestry and enjoying a good standing with the NGOs. Moreover, the State Forests fully accepted the scheme of work and procedures implemented by FSC upon analyzing the criteria and guidelines thereof. A daring

decision was made to subject all forests to the certification process carried out by independent agencies.

Future Developments/Scenarios

Analysis of the certification experience in Poland to date leads to the conclusion that the certification processes will proceed in forestry and the wood industry and will be treated as a necessary condition for further development of both sectors. Development of certification processes is an important factor influencing financial conditions and, following this, any further growth of the forestry and timber industry. Separation of wood and wood products into two separate certification processes may be declining. One should expect the deepening of “chain of custody” certification.

Certification rules must evolve in line with the changes taking place in environmental protection and management, including forestry, in different parts of the world. Europe is not an exception, and the versatility of changes is, contrary to common opinion, very high. It means that natural, geographic, cultural, economic, traditional cultural, religious, or political conditions largely determine the effectiveness and possibility of using and enforcing the use of certification directives.

It is believed that neither today nor in the future will the non-governmental organizations’ pressure have any crucial impact on changing the decisions about forest resources administration and management in Europe or in Poland. A much greater role should be assigned to the governmental agencies’ position in ensuring compliance with the signed international agreements and influences of the international market on raw materials, intermediate products and forest products.

Future Research

The list of study areas associated with certification is very long, including issues related to forestry, wood processing, economic aspects of environment management, public communication, and biodiversity. However, it is believed that the greatest current challenge in this area is to find answers concerning the functioning of natural and deformed forest ecosystems under stress.

REFERENCES

- Akty prawne i instrukcje. 2003, 2004. Rozporządzenie Rady Ministrów RP z dnia 6 grudnia 1994 r. Dz. U. nr. 134. poz. 692 oraz Instrukcje Dyrektora Generalnego LP. Rzeczpospolita Polska.
- Central Statistical Office 2003. Główny Urząd Statystyczny. Informacje i opracowania statystyczne. Warszawa.
- Certyfikacja. 2000. http://www.oikos.net.pl/las_polski/21_2000/certyfikacja_1.htm
- Dubois, O., N. Robins, Baas. 1996. Forest Certification and the European Union. International Institute for Environment and Development, London.
- Forest Community of eight entitled villages in Witów region, Ministry of the Environment, Republic of Poland. 1999.
- FSC. 2003. Annual Review. News Notes.
- Klabbers J., 1999. Forest Certification and WTO. EFI, Discussion Paper 7.
- Official Journal of Laws. 2000, no. 56, item 679. Monitor Polski. Rzeczpospolita Polska.
- Ozinga S., 2001. "Forest Certification: A Lack of Trust on All Sides." *Forest Certification: Forging Novel Incentives for the Environment and Sustainable Forest Management*. EFI Proceedings of the International Workshop, Brussels, Belgium.
- Paschalis-Jakubowicz, P. 1995. Konsekwencje wprowadzenia światowych zasad certyfikacji dla użytkowania lasu. Materiały Konferencji. Model optymalnych dla środowiska procesów pozyskiwania drewna. IBL. Warszawa.
- Paschalis-Jakubowicz, P. 1996. Certification in Forestry – All the Rage? WWF Forest Seminar. Forests for Life. Brussels.
- Paschalis-Jakubowicz, P. 1998. Sustainable Forest Management as a Basis for an European Approach to Certification. UEF, XIV Congress in Finland.
- PEFC. 2003. PEFC Council Joint Accreditation Forum.
- PEFC Council Information. 2004a. Statistics on PEFC Certification.
- PEFC. 2005. http://www.pefc.org/internet/resources/5_1177_452_file.1299.pdf.
- Peter, E. 2003. The Pan-European Forest Certification (PEFC). Scheme, An Update. http://www.fern.org/pnbs/reports/footprints_pefc.pdf.
- Qualifor Programme. 1999a. Guidance Notes for Peer Reviewers, SGS, Qualifor Programme, Oxford Centre for Innovation, Mill Street Oxford OX2 0JX, UK.
- Qualifor Programme. 1999b. SGS Forestry, Main Assessment Report.
- Rametsteiner E., P. Schwarzbauer, H. Justin, J. Karna, R. Cooper, Samuel J., M. Becker, T. Kuhn. 2001. *Potential Markets for Certified Forest Products in Europe*, EFI, Discussion Paper 2.
- Rykowski, K. 2003. Zarys kryteriów i wskaźników trwałego i zrównoważonego zagospodarowania lasów w Polsce dla potrzeb certyfikacji. IBL Sękocin – Las, Polska.
- Simula, M., E. Rametsteiner, A. Blastsen, T. Green, B. Pajari. 2001. *Forest Certification: Forging Novel Incentives for the Environment and Sustainable Forest Management*. EFI Proceedings of the International Workshop, Brussels, Belgium.

- State Forest Report. 2002. Państwowe Gospodarstwo Leśne. Raport Roczny. Centrum Informatyczne Lasów Państwowych. Warszawa.
- Szujecki, A. and P. Paschalis-Jakubowicz, 1997. Polish Forestry against the Background at European Forest Policy. Conference organized by the Club de Bruxelles. Bruxelles, Belgium.
- Thornber, K., D. Plouvier, S. Baas. 1999. Certification: Barriers to Benefits. A Discussion of Equity Implications. EFI, Discussion Paper 6.
- Ustawa z dnia 28 września 1991 o lasach, wraz z późniejszymi zmianami. Dz. U. No. 91, item 444. Rzeczpospolita Polska.
- Walder zum Leben. 1996. Ein Handbuch von WWF und IUCN zum Theme "World" WWF. Panda House: 1-46.
- WWF Guide to Forest Certification. 1996. WWF Panda House: 1-36.
- Valtanen H. 2001. Minimum Requirement of Forest Certification Schemes: Viewpoint of the Forest Industry. In *Forest Certification: Forging Novel Incentives for the Environment and Sustainable Forest Management*. EFI Proceedings of the International Workshop, Brussels, Belgium.
- WWF. 2003-04. Światowy Fundusz Na Rzecz Przyrody 2003, Biuletyn: Leśnictwo i Certyfikacja, www.wwf.pl; Nr: 1/2003, 2/2003, 3/2003, 6/2003, 1/2004.

ACRONYMS

C-o-C	Chain-of-Custody
EEC	Eastern European Countries
EU	European Union
FSC	Forest Steward Council
MaB	Man and Biosphere
MDF	Medium Density Fiberboard
OSB	Oriented Strength Board
PEFC	Programme for the Endorsement of Certification
SFM	Sustainable Forest Management
UNCED	UN Conference on Environment and Development
WWF	World Wide Fund for Nature