PROBLEMY EKOROZWOJU – PROBLEMS OF SUSTAINABLE DEVELOPMENT
2009, vol. 4, no 2, str. 125-131

Użytkowanie lasów a ochrona środowiska w zrównoważonej gospodarce leśnej

Forest Utilization versus Environmental Protection in Sustainable Forest Management

Piotr Paschalis-Jakubowicz

Warsaw University of Life Sciences, Faculty of Forestry. Department of Forest Utilization, ul. Nowoursynowska 159, 02-787 Warszawa, Poland, e-mail: Piotr.Paschalis@wl.sggw.pl

Streszczenie

Użytkowanie lasu sprowadza się do zaspokojenia potrzeb zarówno materialnych jak i duchowych, co oznacza, że odstąpienie od bezpośredniego użytkowania dóbr pochodzących z lasu, a ograniczenie się do doznań emocjonalnych – wynikających np. z przyjemności patrzenia na las lub na pojedyncze drzewo, lub z faktu posiadania przeżyć i marzeń, że taki las lub takie drzewo istnieje – jest także jego użytkowaniem.

W pracy przedstawiono wyniki analizy nad rozwiązywaniem problemów odnoszących się do lasów zagospodarowanych, a więc takich, które są równocześnie objęte różnymi formami ochrony. Stwierdzono, że zmiany zachodzące w skali globalnej, w zakresie leśnictwa wymagają dokonania kolejnych, istotnych zmian w wartościowaniu funkcji, jakie pełnią lasy i rewizji stosowanych form użytkowania zasobów leśnych przez człowieka. Wiąże się to z reorientacją obecnych i poszukiwaniem nowych metod w poznawaniu i użytkowaniu lasu, odnoszących się zarówno do funkcji lasu jak i jego trwałości, również w odniesieniu do obszarów chronionych.

Różnorodność stosowanych metod gospodarowania lasami w skali świata jest nie mniej bogata, niż różnorodność warunków przyrodniczych. W każdym z analizowanych przypadków stwierdzono, że lasy znajdujące się na obszarach chronionych są także użytkowane, w mniejszym, lub większym stopniu w celu otrzymywania natychmiastowych, bezpośrednich korzyści surowcowych, ale zawsze – w postaci innych korzyści, niezbędnych dla rozwoju człowieka. Szczególnie w dobie światowego kryzysu energetycznego, pojęcie odnawialności zasobów leśnych, widzianych przez pryzmat biomasy leśnej, potencjalnie możliwej do wykorzystania jako nośnika energii, w świetle wymagań odnoszących się do ochrony środowiska przyrodniczego musi być jasno zdefiniowane.

Procentowy udział powierzchni leśnych chronionych w Polsce, według kategorii Międzynarodowej Unii Ochrony Przyrody uwzględniający parki narodowe, krajobrazowe i rezerwaty przyrody wynosi około 18%. Dodatkowo, na terenie Lasów Państwowych znajduje się: 9038 różnego rodzaju użytków ekologicznych o powierzchni 28096 ha, ponad 10757 pomników przyrody, w tym zarówno pojedynczych drzew jak i grup drzew, 218 alei zabytkowych, 460 głazów narzutowych, 239 skałek, grot i jaskiń, oraz wiele pomników przyrody i krajobrazu. Przenikanie się działań gospodarczych opartych na bezpośrednich odniesieniach ekonomicznych, z działaniami trudno wymiernymi ekonomicznie w zakresie ochrony środowiska, bez holistycznej i zarazem humanistycznej oceny będą zawsze ułomne.

Słowa kluczowe: użytkowanie lasu, ochrona środowiska, funkcje lasu

Abstract

How should forest utilization issues be considered in the case of forests growing in economic activity areas where, with a view to specific environmental protection requirements, human activity is or should be significantly reduced? In this outline, the author discusses issues related to the utilization of forest resources in different zones and under different forms of environmental protection that are in the sphere of interest of the National Environmental Council.

It can be said that forest utilization boils down to meeting material and spiritual needs. Therefore, abandoning direct use of forest products in favour of only spiritual pleasures derived from e.g. looking at a forest or a single tree, or from dreaming or having nice feelings about such a forest or a tree, is also its utilization. The paper presents results of the study on solving problems related to manage forests that is forests, which are at the same time under different forms of protection. The findings show that changes taking place globally require from forestry further, essential changes in evaluating forest functions and revision of the forms of utilization of forest resources applied by man. This is connected with reorientation of the current methods and seeking new ways of exploring and utilizing forests, with respect to their functions and sustainability, as well as protected areas. The forest management methods applied worldwide are not less diversified than natural habitat conditions. In each of the analyzed cases, forests located within protected areas are also utilized to obtain, to a smaller or larger degree, immediate, direct raw materials benefits and, always, other benefits necessary for man's development.

Particularly now, at the time of the global energy crisis, and in light of natural environment protection requirements, the notion *renewable forest resource*, seen through a prism of forest biomass, with potential to be used as an energy carrier, must be clearly defined.

The percentage share of protected forest area in Poland is about 18 per cent, according to the International Union for Nature Conservation categories embracing national and landscape parks, as well as nature reserves. Additionally, in the territory of the State Forests National Forest Holding, there are: 9038 areas of ecological utility of an area of 28096 ha, over 10757 nature monuments, including single trees and groups of trees, 218 historical tree avenues, 460 erratics, 239 rocks, caves and grottos, as well as many landscape monuments.

Key words: forest utilization, environment protection, forest functions

1. Introduction

Forest utilization is the oldest form of man's activity, a natural behaviour towards forest offerings whose importance for our life is not always fully appreciated. Speaking about functions played by forests, we have in mind a broad use of forests, and the list of their usable functions is long and still incomplete. As we do not know all potential forest functions, we can assume that their use occurs even in the absence of man in the forest. In a broader sense, forest utilization can be viewed as satisfaction of both material and spiritual needs. Therefore, abandoning direct use of forest products in favour of only spiritual pleasures derived from e.g. looking at a forest or a single tree, or from dreaming of or having nice feelings about such a forest or a tree, is also its utilization.

Besides, we should agree that use of forest functions like cultural, moral, ethical, religious and many others is not quantifiable, therefore its valuation, including economic, can be very difficult, if not impossible.

How should these issues be tackled in managed forests and how in forestlands under different forms of protection, particularly in National Parks and nature reserves? Should forest utilization issues be at all considered in areas where human activity is significantly reduced or deliberately eliminated? These questions are not so much important in theoretical considerations as they are in the implementation of practical solutions.

It is believed that this is one of the major issues dealt with by the National Environmental Council.

2. Methodological assumptions

The result of the carried out analyses and considerations presented in this paper is an attempt at answering the posed questions, as forest as the object of research has always been and continues to be an integral part of civilization development, while the development of forest sciences and implementation of research results in this area have proceeded uninterrupted.

Changes significantly affecting forestry, which take place on a global scale, require subsequent, essential changes in evaluating forest functions and revision of man's attitude towards forest utilization. This is connected with reorientation of the current and seeking new methods of exploring and utilizing forests, with respect to their functions and sustainability, as well as protected areas.

The common belief that it is necessary to treat the productive function of forests as most important and, frequently, the only one, has caused that forest management has for a long period in the history of Europe been reduced to exploitation of forest resources resulting in intensive deforestation and disappearance of forest cover.

Poland's current forest cover estimated based on historical studies amounted in the 10th century to 90 per cent (Ottisch, 1996), Paschalis, 2004). At the beginning of the 20th century, it oscillated around 30-32%. The conquerors' activity and the two world wars have reduced forest cover to about 21% in 1945. At present, the total area of forestland in Poland is 9048 million hectares; this is equivalent to 28.9% of the country's area (CSO, 2007)

Very few forest complexes have been preserved in Europe only little transformed in the past millennium. The Białowieża Primeval Forest complex is one of the few. This is also an example of an extraordinary sequence of historical events, combined with natural forest inaccessibility, which has enabled preservation of close to natural forest ecosystems with several-hundred-year-old trees.

A very rapid development of science and technology that took place in the 20th century eliminated timber from many areas of life. The contemporary people believed that achievements in metallurgy, the chemical industry, mining and processing of other raw materials, and most of all, progress in the use of other materials in the building industry would enable wood substitution. This period in the development of our civilization, connected with the replacement of wood with various substitutes, lasted more or less till the middle of the 1950s and ended with a third phase – reoccurred irreplaceability of wood.

About 30 thousand products of different kind are manufactured today. The past generations and which today can be proven scientifically often intuitively, cherish those wood properties, which were appreciated, cherished increasingly often.

Treating wood as a renewable raw material is still deeply rooted in our conscious. Particularly now, at the time of the global energy crisis, and in light of natural environment protection requirements, the notion *renewable forest resource*, seen through a prism of forest biomass, with potential to be used as an energy carrier, must be clearly defined. I think it is necessary to assume that wood is a renewable raw material only when forest is renewable too. This is a confirmation and acknowledgment of the concept of sustainable management of natural resources enabling the current and future generations to survive.

Thus, we arrive at a statement that forests in protected areas are also utilized: rarely in a way providing direct raw material benefits, but always in the form of other benefits necessary for man's development.

3. Learning about forest through its utilization

Forest knowledge acquisition is determined, to a large degree, by the necessity or willingness to seek answers to the questions bothering people, or the demand for forest research findings from different social groups, frequently having conflicting interests. Therefore, classification of forests into managed forests or protected forests is a deliberate choice, based, among other things, on the current state of knowledge, social and political pressure and other premises, not always clear-cut. The knowledge of forests, initially disorderly and haphazardly accumulated, has, with the passage of time, become systematized, with attempts at its synthesis. This has precipitated further discoveries and questions.

I think that in dealing with forestry we show natural propensity for posing questions about the predictable future of forests. The common belief in inexhaustible and sustainable forest resources prevailing until the 1960s sharply ended after the publication of the reports of the World Resources Institute (1990-1998), UN FAO and NASA, as well as reports of non-governmental organizations, which revealed the true utilization status of the Earth's surface. The spectre of ecological disaster, not only national, but also continental or even global, caused by forest destruction has made people more sensitive to the way forest management is carried out.

Analysis of the subject matter literature shows that the forest management methods worldwide are not less diversified than natural conditions. Among many books published in the past dozen or so years, including a synthesis of achievements in exploring forests, some of them deserve our particular attention. The publication edited by N. Sharma (1992) dealing with the causes of conflicts and the attempts at their solving in areas of intensive management of forests and their simultaneous protection, as well as the fundamental work on biodiversity by Wilson (1988) are of great importance.

Forest utilization occupies a special place in the exploration and management of forest resources, and in the concurrent, broadly understood environmental protection. At the beginning of all achievements in forestry (but not only), is, as the first cause, the willingness, and, frequently, also the necessity to explore and research forest to better understand it, to sustainable develop it and utilize it, and, for this reason, to better protect it. To manage forests means first of all to realize their irreplaceablility in providing direct and indirect benefits, their strictly defined renewability and potential for drawing profit from them on a permanent basis, and at the same time their natural uniqueness.

How to implement, in a strictly defined time, only selected forest functions, maintaining in the long perspective the above mentioned forests functions?

We are therefore facing the necessity of breaking certain barriers in the scientific disciplines and research fields pursued so far. The open-ended list of research courses (Paschalis, 1997) should be extended to include, for example, evolution of forest legislation, methodology of international envi-

ronmental protection conventions, local, regional and global forestry, forest lobbying, intersectoral subjects like forestry-agriculture, forestry-water resource management, regional development, and others. Large areas of forestry researched and observed so far using the traditional methodology must be subject to review, using new verification systems for accumulated findings.

It seems necessary to promote further development of basic research in forestry. This hypothesis is based on the publication data in the form of alarmist reports on the continuing forest damage, growing population and other global changes accelerating the said processes, as well as on the spread view that forest cutting should be totally abandoned and that forestry should be divided into monofunctional (e.g. plantation forestry) and multifunctional.

However, meeting our elitist requirement for selected, production functions of forests is, at the same time, a threat to the imperative of implementing a sustainable forest management model. Only sustainable utilization of all forest functions can guarantee forest sustainability and environment protection (Paschalis, 1998).

It is sad to conclude that the condition of natural sciences, including forest sciences, has been insufficient to ensure adequate and sufficient information meeting the challenges of the contemporary world, which might answer the questions posed for and by forestry at the turn of the second millennium. This is at the same time one of the causes of the crisis suffered by forestry on not only a country or a continent scale. Also views are spread that the future of forestry depends on the development potential of the industry and its ability to meet global challenges and changes (Baines, 2004), and on whether the world will gain benefits from or will be damaged by the globalization processes (Knudsen, 2004).

In the atmosphere of global threat to the environment, without proper social education, forest utilization becomes a forestry activity, which mainly attracts public opinion, ecological movements, scientists and other professionals who jointly oppose the natural succession of forest generations, normal in correct forestry practice. A characteristic feature of these views is the belief that, for example, one of the social functions of forests – the commonly approved recreational utilization of forests – may cause a greater degradation to the forest ecosystem than the function of a raw materials supplier. R. Seppala (2004) points to a special cognitive value of these issues, placing them in a broader group of social and economic functions.

Nevertheless, attention should also been paid to so called "invisible" forest utilization referring to the spiritual, aesthetic and moral values of forests (Paschalis, 1998) which also constitute an important stage in forest knowledge acquisition. In such cases, we deal with a certain dichotomy in evaluating phenomena. First, the appraisal of these values, that is benefits gained by man, is hardly measurable. Being more precise, there is partial lack of appropriate tools for such evaluation. Second, in the practical dimension of forestry, we lack proper preparation for special provision of these functions.

Therefore, forest utilization must follow laws, both natural, including those ascribed to local communities, and man's laws, of the people managing forest resources on behalf of the communities inhabiting areas located outside forests. It is very difficult to combine those laws and we cannot find many examples of such solutions. Leaving forests exclusively to nature, as some suggest, is currently impossible at least on large fragments of the Earth's surface, including Europe.

Forest knowledge acquisition also requires a better understanding and transfer of the deeper contents of scientific forest information. Also for these reasons, learning about forests is a necessity.

4. Theoretical foundations of forest utilization outline

Theoretical foundations of forest utilization has caused increased interest in the humanistic dimension of forest functions (Paschalis, 1992, 1996; Szujecki, 2001) after publishing the theses that forest utilization may also take place without man's direct contact with forest, even when he is not aware that he has continuously been using certain forest functions, and that it is possible to anticipate social expectations towards forests – even in the perspective of several generations. Theoretical search for solutions thereto is stimulated by the growing decline of confidence in those responsible for natural environment management and communities frequently haunted by global catastrophic visions. Such opinions are wide spread and reflect concerns about the condition of our forests, lack of appropriate protection, errors in their management, distribution, age structure, etc.

The future of European civilization in the first decades of the 21st century is determined by ecodevelopment, which is a sustainable development, which satisfies the current generation's needs and does not limit or deplete their fulfillment potential. This definition well fits into the philosophy of forestry and forest holding management implementing this development model on a large area of Europe's forests for over 200 years.

It should be noted that the promises of forest multifunctional carried by the notions used in sustainable forestry could not be fulfilled all at one time and right away. We touch here upon a valid question which boils down to the acceptance of a thesis that sustainable forestry development means a multifaceted protection and utilization of all functions of forests at the same time.

As concerns issues related to the broadly understood forest utilization, there are significant gaps in the developed Forest Programs in Europe, and the forest utilization subject range is marginalized in the developed National Forest Programs.

The wordings of the current National Forest Programs in Europe concerning forest utilization and environment protection issues have three essential weak points (Paschalis, 2002):

- lack of an operational definition of sustainable forest management,
- different interpretation of the main points in the National Forest Programs by different countries,
- in many cases, disappointing results of market-oriented and narrow-sectoral forest management, particularly in the last decades of the 20th century,
- lack of a clear-cut vision of proceeding with protected areas.

The fact that in many cases we have to utilize forests in protected areas, where sophisticated techniques and technologies are applied in forest operations, is of fundamental importance for correct understanding of the aforesaid issues.

Minor (non-wood) forest utilization, which in multifunctional forestry gains broader significance, requires separate analysis.

The main problem in Poland is not lack of legal regulations governing by-products of forest use, but the fact that, in practice, these legal provisions are not fulfilled. A significant amount of mushrooms and forest fruits, as well as some usable plants appear on the market against any sustainable forest management rules. Therefore, efforts should be made to review and, particularly, to adjust the existing legal regulations to reality, at the same time being aware of the lack of strong enough effects of the high pressure on the non-productive functions of forest management, not accompanied by society's readiness to compensate the outlays expended by the economy on the discussed forest functions.
Still open remain the following issues:

- What is the value of all forest resources for the state taking into consideration all forest functions, what is their value for society, and how much is society willing to pay for a change in the intensity of the productive function of forests?
- What are the limits of interference in the environment and private property where decisions concerning their management, including forest utilization, reach or exceed the ecological and ethical acceptability limits?

This means that we are entering such a period of forest-man relationships where a change in the scope and intensity degree of forest functions and a decline in forest holding profitability are observed, and that both tendencies are stimulated by the fact that still larger forest areas are placed under various forms of environmental protection.

This does not change a bit the European Community's firm and clear standpoint that our obligations towards environmental protection and, in particular, towards the protection forest area, may not eliminate the need for effective forest production, including timber production, and stimulation of its proper use. What is more, the clear-cut provisions in the Forest Strategy obligate to: "promote wood and non-wood products of sustainable managed forests as environmentally friendly and conforming to the free market rules". Another provision about "augmentation of the contribution of forestry and the forest products-based industry to the augmentation of the population's income, employment and development of other factors having influence on competition and dynamics of the economy" seems to complement the previous one.

Any attempts at solving forest utilization issues without a holistic and, at the same time, humanistic approach will be flawed, first of all, because the concept of full, or partial, or selective wood biomass utilization is increasingly present in considerations concerning effective use of renewable resources in the context of e.g. climate change. However, not less important is performance, concurrently with utilization, of the evaluation of environmental effects.

5. The framework of international cooperation for the protection of forests and their utilization in Europe

The Ministerial Conference on the Protection of Forests in Europe is a continuation of the most important collaborative initiative of European states and the European Union concerning improvement of the sustainable management of European forests, initiated at the First MCPFE Conference in Strasburg, France in 1990 (Klocek, Paschalis, 2005).

The main achievements of the Conference have been so far:

- setting the framework for international cooperation in forest protection in Europe and stimulation of forest research development, based on a unity of thought in making political decisions about forests and forestry in Europe,
- agreeing on the wording of the main provisions concerning sustainable forest management, preservation of forest biodiversity, cooperation in forestry with countries undergoing economic transformations and the necessity to prepare forests in Europe for anticipated climate changes.

6. Relationships between forest utilization and environmental protection in Poland

The percentage share of protected forest areas falling into IUCN Categories I-VI in the total forest area is about 18 per cent (UN-ECE, 2008). The percentage share of forested areas under different forms of nature protection in the total area of forests in our country is not very different from those in the remaining countries in our region.

Of course, the term *protection forests* is often understood as fulfillment by forests of their function of protecting biodiversity, landscape, etc. also meeting the requirements of IUCN classification - Class 3.1. and 3.2.

Singling out these forms of protected areas is based on the extraordinarily of the functions they perform and a common belief that their protection is necessary, accompanied by a common lack of knowledge about the principles of their functioning and management.

Attempts were made in the previous fragments of this outline to show, on the one hand, a widespread forest use in all forms of protected areas, and on the other hand, a series of interrelationships and consequences resulting from concurrent utilization and protection of forests. The theory of nature conservation foundations deals with those interrelationships and some scientists are of an opinion that placing selected protected areas under passive and active protection regime is the right solution.

We arrive here at a well known, but often forgotten truth that forest utilization in the forested areas of National Parks in Poland has always been taking place, and the total volume of harvested timber in National Parks in the past several years has oscillated around 200-220 thousand cubic meters of timber raw material annually.

It is much more difficult to estimate the total volume of harvested timber in other protected forest areas. Frequently, these are single trees whose removal is necessary, with each case being considered individually.

We should also emphasize the great variety of natural richness in the territories under the management of the State Forests NFH comprising. The inventory carried out in the State Forests (2008) included the following categories of nature protection: 1211 nature reserves on an area of 118037 hectares, 10757 natural monuments including: 8477 single trees, 1363 groups of trees, 218 avenues, 460 erratic, 239 rocks and caves, including 167 monuments covering an area of 308 ha, 9038 areas of ecological utility of an area of 28096 ha, 197 documentation sites of an area of 1364 ha, 121 nature and landscape complexes of a total area of 32833 ha. In addition, there are 2774 protective zones distinguished for certain protected animal species, of an overall area of 159271 hectares, of which 38162 hectares enjoy strict protection.

We should also add to the above list over 245, 495 hectares of forest stands being a seed base, including 16, 622 hectares of selected seed stands and 228, 873 hectares of economic seed stands. Selected gene reserve stands occupying 3,001 hectares are of our special concern, as they enable promotion of the main native forest species.

This leads to a conclusion that part of the above mentioned protective functions of forests, like shaping global or local climate, oxygen production, water quality, filtration of dusts and many others, are treated as sort of an external effect of forestry, for which carrying out or not carrying out forest management does not lead to noticeable effects of forest impact. This does not mean that such an impact does not exist. There are positive effects in the form of public benefits, which should be treated as non-wood forest goods, available to all and for, free. However, the owner pays the costs of their maintenance and production, as well as the costs incurred in connection with the reduction of other forest functions, e.g. production function.

In Poland, with free access to forests and free use of the protective functions of forests, forest managers or forest owners incur all the above costs. In practice it means, that nearly all the costs resulting from forest functions are generated by the State Forests NFH. This again distinguishes us favourably from other EU states in which the public functions of forests, which are, in majority, private, are limited.

The percentage share of forests playing protective functions in Poland differs from those in the remaining European countries. The total area of protection forests in the State Forests NFH, as of 31 December 2002 amounted to 3272 thousand hectares, or 46.8 per cent of total forest area. Among the said categories, water-protecting forests occupy the largest area – 1,370 thousand hectares, forests around towns – 615 thousand hectares, forests damaged by the industry – 584 thousand hectares, and soil protecting forests – 339 thousand hectares.

As concerns forest practice, operations are carried out in forests outside strict nature reserves, though to a degree much smaller than in managed forests, including timber harvest and non-wood forest use, like picking mushrooms, berries and medicinal plants. This status results from the historically and legally sanctioned right of collection of forest floor products in National Parks by local communities and forest harvest (governed by separate regulations).

In many cases, collection of forest floor products is carried out also in the territory of the State Forests NFH with the protection forest status on a scale similar to that in managed forests.

7. Final remarks

At the end of the XX century, Polish forestry initiated a process of the growing acceptance of many systemic solutions in the field of natural environment protection. Among these is sustainable forestry, which does not always meet the set of conditions in reality.

Sustainable forestry, assessed in accordance with the criteria and indicators of sustainable development, in practice evolving more and more towards individual management of a particular administrative (or property) unit of the forest. This restricts, to some extent, the possibility of making countrywide decisions, not be capable of fulfilling currently imposed commitments to future generations

This remains strictly related to the utilization and protection of forest ecosystems.

References

1. BAINES Ch., 2004, - Forest Research Crossing Borders – A Foreword. Forest Research Crossing Borders, in: *EFI Proceedings* No. 50.
2. Forests In Poland 2008, Państwowe Gospodarstwo Leśne Lasy Państwowe, Centrum Informacyjne LP, Warszawa 2008.
3. Główny Urząd Statystyczny, Rocznik 2007, GUS, Warszawa 2007.
4. KNUDSEN O.K., 2004., Globalization and Sustaining Forests: Good, Bad or Indifferent?, Forest Research Crossing Borders, in: *EFI Proceedings* No. 50,
5. KLOCEK A., PASCHALIS-JAKUBOWICZ, 2005, IV Konferencja Ministerialna na temat Ochrony Lasów w Polsce, in: *Sylwan* nr 4, p. 61-71.
6. OTTISCH A., *The changing Face of Europe. Deforestation between 900 and 1900 A.C,* Wiedeń 1996, unpublished.
7. PASCHALIS-JAKUBOWICZ., P., 1992, Zasady światowego ekorozwoju, in: *Sylwan* nr 1, p. 5-9.
8. PASCHALIS-JAKUBOWICZ P.,1997, Nauka i badania leśne u progu XXI wieku, in: *Sylwan* nr 2, p. 5.
9. PASCHALIS-JAKUBOWICZ P., Użytkowanie Lasu: znane problemy?, w: *Użytkowaniu lasu: problemy regulacji użytkowania lasu w Polsce,* red. Paschalis P., Fundacja Rozwój SGGW, Warszawa 1998, p. 3-7.
10. PASCHALIS-JAKUBOWICZ P., 2002, Sustainable Forest management: Problems, Causes and Concerns In Changing Societies of Europe, IUFRO European Regional Conference: Forestry Serving Urbanized Societies. Plenary Session: Treats to Forests and their Sustainability in Urban Societies Abstract in: *Urban Forestry and Urban Greening*, *Supplement 2002*, p.1-18.
11. PASCHALIS-JAKUBOWICZ P., *A Shortage of an Adequate Formulations in National Forest Programmes in Relation to the Forest Utilization. Forest Utilisation in Sustainable Multifunctional Forestry,* Wydawnictwo SGGW, Warszawa 2002.
12. PASCHALIS-JAKUBOWICZ P., *Polskie leśnictwo w Unii Europejskiej,* Centrum Informacyjne L.P., Warszawa 2005.
13. SEPPALA R., 2004, Better Information for Good Governance of Forests, Research Crossing Borders, in: *EFI Proceedings* no. 50.
14. Ed. SHARMA N.P, *Managing the World's Forests. Looking for Balance between Conservation and Development,* Kendall/Hunt Publishing Company, Iowa 1992.
15. SZUJECKI A., 2001, Polityka leśna Państwa a Strategia leśna Unii Europejskiej i Narodowe Programy Leśne, in: *Postępy techniki w leśnictwie* nr 80.
16. WILSON E.W., The current state of biological diversity, in: Wilson E.O., Peter F.M., *Biodiversity,* National Academy of Sciences, Washington D.C. 1988, pp. 3-18.
17. WORLD RESOURCES INSTITUTE (WRI) 1990-2006, World Resources. Washington D.C. 2006.

About the Author

Piotr Paschalis-Jakubowicz, Full Prodessor, Head of the Department. Warsaw University of Life Sciences, Faculty of Forestry. Department of Forest Utilization.

Member of the COST TC Committee (1998-2003) and Chairman of the Forests and Forestry Products Sector (2004-2005).

Lecturer and visiting professor at several universities in Europe (Finland, Germany, Czech Republic, Hungary, The Netherlands) and USA (Fort Collins, Yale University, Harvard University).

Peer reviewer to the international scientific papers submitted to the World Forestry Congress, IUFRO World Congress, Forestry Journal, Silva Fennica and many others. Peer reviewer to the international research programme's: European Science Foundation, COST, and World Bank.

Project Manager of Global Environment Facility GEF-World Bank (1992-1996).

Associate Editor of "Folia Forestalia Polonica" and "Sylwan" – since 1990.

Professor of Forestry. Al Fateh University Libya and cooperation with the FAO teams in Libya, Tunisia and Algeria.

Several studies and field research in the boreal, temperate, tropical, subtropical and Mediterranean countries. Author of the multidisciplinary research projects, several reports and opinions covering the implications of introducing the SFM to the forestry practices.

Present scientific activities: Member of the Scientific Committee of the Forest Technology Platform.IUFRO Board Member (since 2005). Scientific coordinator of the Eforwood Programme.

Publications: Text books – 12, peer-review articles – 238, expert evidence – 33.