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SOCIAL FUNCTIONS OF FORESTS IN POLAND

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Abstract: Humans are a part of nature and society. They tend to satisfy their needs that guarantee the existence by using natural and social richness. Forests represent a reservoir of the natural richness. They perform economic, ecological and social functions. The paper presents characterization of the social functions of forests, with particular focus on health function, recreation and tourism function, educational function and cultural function. With specific categories of forests, the scope of organizational and managerial activities conducted by forest authorities was presented as determining factors in performance of these functions. Furthermore, the focus was on the negative factors that affect forest environment and its functions.

Keywords: forest, social function, limitations in performance of functions

Introduction

Forests are characterized by inimitable economic, protective, health, educational and recreational values. In Poland, they account for 30.3% of land surface of the country. Being social entities, humans are not only part of society but also part of natural environment which, through adequate utilization, provides conditions for living in different areas.

The paper proposed a general hypothesis that emphasized the opportunities for utilization of forests by humans, not only viewed from the standpoint of productive and ecological functions but also in social terms, including such areas as health, recreation, tourism, education and culture.

The aim of the paper is to determine the social functions and tasks of forests, illustrate the general idea of performing these functions within individual forest categories depending on organizational and managerial activities and to indicate the factors which have a negative effect on the forest environment and the production, ecological and social functions. Understanding of the scope of individual functions performed by forests involves finding effective methods to reach the balance between these functions that is consistent with the principles of sustainable development of the economy, nature and society.

The paper is of a review character. The methodology of analysis of secondary documents in the form of specialized literature, official documents and author's own thoughts was used.

General data about forests in Poland

Area of forests in Poland is around 9,300,000 ha. With this number, Poland is among the countries with the highest area of forests in Europe (following France with 15,500,000 ha and Germany with 11,400,000 ha). Furthermore, using the international standards of forestation expressed as percentage of land area (ratio of forest area to land area, without land waters) amounts to 30.3% and is lower than the European average (33.8% excluding the Russian Federation). Lower forestation per land area is observed in such European countries as Ukraine, Hungary, Romania and France.

The structure of forest property in Poland is dominated by state forests (81.8%), including the forests managed by the State Forests National Forest Holding (77.8%). Private forests account for 18.2% (figure 1).

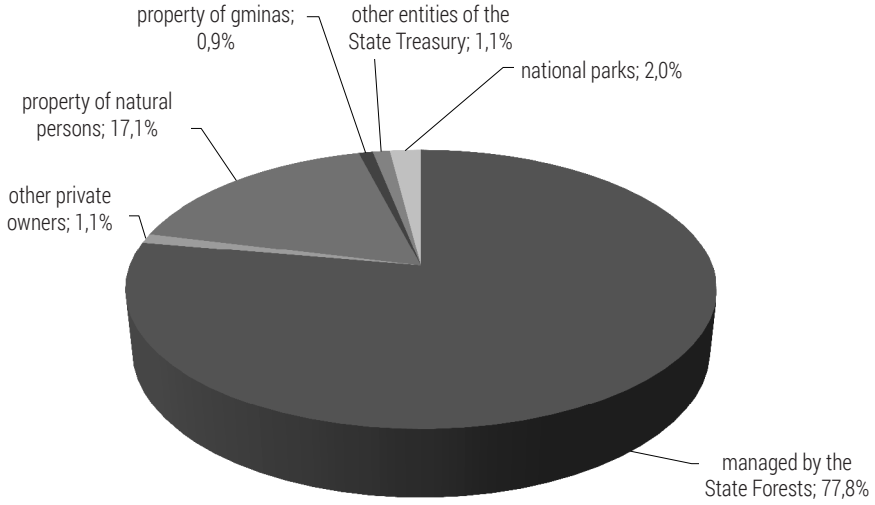


Figure 1. Structure of forest property in Poland [%]
Source: (Raport, 2010, p. 9).

Comparison of the ratio of state forests' area to overall area of forests in the group of European countries reveals substantial variation. The division into three groups of countries can be made: the Commonwealth of Independent States (CIS), with 100% forests being the property of the state; Scandinavian countries and France, with the most of the countries being private (68-76%) and other countries with varied property structure and prevailing percentage of state forests.

In Poland, the percentage of private forests varies depending on the area. Its highest level is observed in the Lesser Poland Voivodeship (43.3%), Masovian Voivodeship (43.2%), Lublin Voivodeship (39.8%), Łódź Voivodeship (33.4%) and Podlaskie Voivodeship (32.1%). The voivodeships with the lowest percentage of private forests include the Lubusz Voivodeship (1.3%), West Pomeranian Voivodeship (1.7%) and Lower Silesian Voivodeship (2.7%), (Raport, 2010).

Forest functions

In general, state forests perform business activities consistent with ecological and sustainable forest strategy of the European Union oriented towards forests' sustainability, environmental protection (especially protection of endangered natural habitats, disappearing species of flora and fauna)

and continuity of multilateral utilization and increasing forest resources. Therefore, forests perform different complementary functions which can be approached in the following manner:

- Production (business) functions, which are focused mainly on the use of the forces of nature and human labour to obtain wood resources and other useful and human-friendly products which are the basis for many manufacturing sectors (wood sector, cellulose and paper industry, energy sector) and the related professions, traditions and cultures. The production function of forests concerns the necessity to provide economic conditions for forest management oriented at regulation of the structure of forest resources, farming needs, demand for wood and its products for business purposes. This function also involves activities oriented at ensuring forest sustainability and increasing forest resources;
- The ecological function, which is reflected by e.g. the beneficial effect of forests on human environment as forests absorb large volumes of carbon dioxide, thus reducing its content in the atmosphere and limiting the consequences of the greenhouse effect. Forests also limit the content of many other gaseous pollutants and filter the air from dusts. They help reduce the temperature amplitude and wind velocity and regulate water circulation in the nature while preventing floods, avalanches and landslides, protect soil from erosion and landscape from steppe formation;
- Social functions (health, recreation and tourism, education and culture). It should be noted that contemporary civilization transitions in Poland and all over the world, with particular focus on the demographic, ecological and economic transitions, contribute to gradual transformation of the forest functions: from economic and production functions towards ecological functions, especially social functions.

Characteristics of social forest functions

Apart from the more detailed analysis of the production and ecological functions of forests, further part of the study focuses on the analysis of the social functions. One of them is the **health** function.

Particular health benefits such as stimulation of the cardiorespiratory system are offered by such forest areas as oak-hornbeam forests, thermophilous oak forests, mixed coniferous forests, dry pine forests and willow and poplar forests. Furthermore, forests help clean the air from heavy metals and dusts and dampen noise, which also has a positive effect on the microclimate of urbanized areas (Raport, 2010). They are necessary for recovery of physical and psychical strength of humans that is reduced through working and

coping with life difficulties. „Typically, humans go to forests to relax in a specific, inimitable microclimate, with harmonious colours of the trees, clean air filled with essential oils that contain phytoncides, which are volatile compounds that have a healing effect on certain medical conditions of the respiratory system and are characterized by bacteriostatic properties" (Muszyński, Kozioł, 2013). Forest is a location for proper and healthy relax, physical and mental recovery and unwinding after fatigue and everyday professional duties which are often done under conditions of nervous tensions that threaten human health. Stress, professional burnout, lack of necessary relax and other mental problems and disturbances in behaviours of humans are caused by tense and hectic professional and family lives, activity of public institutions and mass media. Consequently, people are far from the nature and its health benefits while filling adrift, anonymous and helpless (Douglas, 2011, p. 90). „Similar effect is observed for the contemporary state, with its strong intervention in human affairs and limitation of individualized lifestyles" (Muszyński, Kozioł, 2013, p. 90). Therefore, the forests are rightly nicknamed as "green pharmacy", playing a substantial role in recovery of physical and mental strength of humans and their health status (Kasprzyk, 1977, p. 13).

Health properties of forest ecosystems are conducive to the development of recreation and tourism, with particular focus on areas regarded as health resorts. Therefore, the healing function of forests is connected with their **relax function**, including **recreation and tourism**, since forests are a natural place for relax and recreation, with particular focus on residents of large urban complexes. They also represent the area of numerous trips organized mainly by schools, with opportunities opened up for children and young people to have a close contact with the nature. Urban forests, which are the places for relax of residents of cities and urban complexes, have a special infrastructure for recreation and sports in the form of forest paths (walking paths, bike paths, horse-riding paths, motorcycle paths and fitness trails), canoeing routes, places for relax and playgrounds. This infrastructure improves the social role of the forests and is conducive to its wider utilization by people who are aware and sensitive to civilization threats.

Apart from natural attractiveness of the area, meeting the recreation and tourism functions by forests depends on adequate equipping of certain parts of a forest with facilities for recreation and tourism. Decisions on such facilities can be guided by traditional tastes of tourists who visit specific forest areas and awareness of the needs of organization of tourism and recreation and locating them in the parts of forest where damages to the natural environment would be minimal. Therefore, location of tourism and recreation facilities in forest areas should be well-thought and take into consideration

all the factors that affect both attractiveness of the recreational objects and conditions that guarantee optimal forest protection.

The basic facilities used for tourism and recreation in forest areas are parking places, car parks, networks of roads and paths for walking, biking, horse-riding and routes for tourism and recreation. Forest facilities that stimulate development of tourism and recreation in these areas also include forest shelters near parking places, car parks and campgrounds, equipped in benches and simple tables and roofed shelters used during unfavourable atmospheric conditions as a place for temporary relax and objects which prevent from pollution. Location of these facilities should take into consideration the interesting and varied landscape, interesting views, natural monuments with information boards and signs.

The necessary group of forest objects that are used for tourism and recreation or improve navigation in the forest is boards, signboards, advertising columns, waste bins and containers, markings of the tourist routes and forest fences. Other equipment used in tourism and recreation facilities in the forest areas includes playgrounds for children, campgrounds, forest tent sites, campgrounds situated in particularly attractive places e.g. near lakes and rivers that represent water trails (Kasprzyk, 1977, p. 134).

Nowadays, tourism and recreation management of forest areas has turned into a specialized business activity and should be considered as similar to other basic domains of forest management implemented by the forestry authorities. Therefore, proper planning of the recreational function in the forest areas is becoming essential. This planning should take into consideration the following circumstances:

- forests in Poland represent the most fundamental component of the tourism and recreation space, Since humans are not only a part of the social world they live in but also a part of the natural world. Therefore, they search (go to trips and become tourists) for the lands conducive to recreation and relax. People prefer areas and places for relax with the dominance of components of untouched nature, different from the places they live in (Sikora, 2016). Therefore, the metaphor used by W. Alejziak that says that natural values represent the basic raw material for tourism seems to be right (Alejziak, 1999, p. 25);
- prohibitions cannot be considered as an effective tool to solve the problems of tourism ad recreation in forest areas;
- adequate legal regulations, tourism and recreation planning, tourism management and education are the most powerful instruments to limit the negative effects of tourism and recreation in forests (Krauze, 2003, p. 196).

Therefore, proper planning of tourism and recreation function in forest areas requires cooperation of forest directorates with other entities inter-

ested in management and tourist utilization of forests, and respecting the following principles:

- organizational separation of a unit within forest or gmina administration to be responsible for professional sale of tourism and recreation services in a specific forest area;
- development of tourism and land management plans with respect to tourism and recreation in forests;
- determination of sources of revenues on tourism;
- coordination of activities with local governments, social organizations, natural persons and enterprises which offer tourism and recreation services and utilize the shared services provided by forest directorates and local governments;
- adequate training for tourism personnel;
- promotion of tourist values of forests and providing tourist services through advertising activities and relations with commercial tourist and recreational enterprises (Krauze, 2003, p. 197).

Effective implementation of the organizational and managerial model of the tourist and recreation function of forest areas should take into consideration the interests and options for the major beneficiaries, including:

- national and foreign tourism;
- organizations of tourism and recreation (commercial and social);
- local communities;
- owners of forest areas (state forests, management boards of national parks, landscape parks, private owners);
- governmental administration;
- administration of environmental protection and ecological organizations (Krauze, 2003, p. 197).

Development of tourism and recreation in forest areas may be also an additional source of revenues for forest directorates and institutions that operate in the area of forest. Tourism cannot be eliminated from forest areas and continues to exist beside forest tree nursery and forest experimental areas. Therefore, forest tourism appears to show its economic dimensions in the development of the country, economic entities, human development as a tourist and employee. It ensures the supply of tourism and recreation products in forest areas and determines their attractive prices. It also creates and stimulates the tourist demand through e.g. transformation of the forest function towards recreation, thus improving human capital that has an effect on work efficiency. Rational organization of tourism in forest areas can support the production and ecological functions of the forest but it can also have a beneficial effect on tourist education.

Recreation in forests opens up opportunities for performing the **educational** function of this area (Grzywacz, 2000). Forest education of society in terms of forest management, environmental protection, constant utilization of forest resources, economic stabilization of forest management and promotion (especially among children and young people) of ecological and multifunctional aspects of forests is implemented mainly in the areas of forest promotion complexes (FPC) established in all regional directorates of the State Forests. They represent the areas with specific social, ecological, educational, cultural and scientific importance. Forest promotion complexes are also considered as important research and scientific areas where interdisciplinary research is often conducted. They provide space for activity of ecological education centres, educational chambers, educational roofed shelters, "green classes", didactic routes, educational points, parks and dendrologic gardens or facilities with accommodation places. The objectives of these institutions include raising ecological awareness in society, stimulation of proper attitudes to forests and forestry and development of multilateral and rational cooperation with organizations of environmental protection and ecological associations. Forest and nature education, implemented in all entities of the State Forests National Forest Holding, is specified in the annual "Report on educational activities of the State Forests", which presents information about educational database, forms of education and trainings, financial sources and the most important educational events in a year (Raport, 2010, p. 30).

Educational activities of state forests are very extensive and oriented at all age and social groups. The main educational events organized by forest employees include: field classes and trips with guides, lessons in forest education chambers, meetings with forest employees in schools and in other places, campaigns and education events; educational exhibitions, forest contests, festivals and ecological fairs. The particular role in supporting educational activities is performed by specific institutions e.g. Forest Culture Centre in Gołuchów, State Forests Information Centre, State Forest Development and Implementation Centre in Bedoń, Forestry Research Institute, Dendrology Institute of the Polish Academy of Sciences (Arboretum in Kórnik) and various universities, organizations and social associations.

Educational function of forests is reduced to its **upbringing** function understood as conscious, intentional and organized activities of the institutions that affect human behaviours. Therefore educational activities in forests can be also considered as upbringing. They help people familiarize with the world, promote social development of individuals and encourage them to adopt moral values and social behaviours. The forest educational function also incorporates the teaching function, which is conducive to learning and

self-learning. An interesting and effective tool for implementation of the educational and upbringing functions of the forest are well-organized trips and camps and green schools. Apart from state forests, the educational, upbringing, tourist and recreational activities are also performed in national parks, landscape parks, game reserves and urban forests (Wartecka-Ważyńska, 2010, p. 267).

With the above production, ecological and social functions performed by forests, it can be concluded that they also form the **cultural** function. The cultural function of the forests indicates that forests, natural formations, ecology and education are valuable for human life and cannot be compared to anything else. The concept of culture can be also defined as it may convey multiple meanings. Kozielecki presented culture as objectivized, over-individual and relatively stable system of material and symbolic products that can be the carriers of common values and common meanings and may be rooted in the social environment (Kozielecki, 1997, p. 19).

Januszek and Sikora approached culture as a wholeness of material and spiritual output of humankind which was collected, consolidated and enriched over the centuries and passed from generations to generations (Januszek, Sikora, 2012, p. 104). According to J. Szczepański „culture is the general product of human activity, physical and non-physical values and procedures, objectivised and adopted in certain communities, passed to other communities and other generations" (Szczepański, 1978, p. 78). Therefore, culture represents the wholeness of products created by humans during work in order to acquire resources to meet their needs. Objects, equipment, ideas, ethical values and norms, religious and philosophical views and social, aesthetic and political doctrines are generated by humans and, if they are adopted and persist over many centuries and generations, they are likely to meet human needs. Therefore, this concept of culture includes not only physical products and social institutions but also the principles of social life, behavioural patterns, role models, and criteria for aesthetic and moral assessment adopted in society and determining acceptable behaviours (Januszek, Sikora, 2012, p. 104).

Forests, as a specific natural and social system, include not only different types and species of flora and fauna but also the components of monuments of material, spiritual and religious culture, types of human living, their awareness, tradition and forms of housekeeping. All these elements are interrelated with each other and form a concise ecosocial and cultural system. As general national goods, forests are especially important from social and cultural standpoints. They are present in the literature, arts, aesthetics, architecture and laws and in almost every domain of human productive activity. Forests are a factor that determines the beauty of landscapes and, as a "beauty

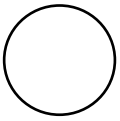
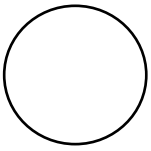
sector", offer opportunities for experiencing the beauty as an aesthetic value. The beauty of nature, forest and other natural formations influence humans while providing them with aesthetic and ethical experience. They are manifested in pieces of art (e.g. paintings), norms and principles of human behaviour, leaving more or less lasting trace in their awareness (e.g. ecological attitude). The relationship between nature and humans is not constant. Humans are a part of nature and their business, educational, recreational and other activities will be always a cultural phenomenon. From the standpoint of culture, forest is the environment which is particularly valuable, the richest and the most varied ecosystem. It is not only the place for the work of foresters, woodsmen, naturalists and inhabitants who live by picking up different forest fruit and mushrooms. Forest is the area which is most frequently visited by many members of society, offers opportunities for active recreation, inspires for artistic creativity and development of literature and culture. Many archaeological locations, old graveyards, tumuluses, stone circles, caves, glacial erratics and natural monuments were preserved the best by forests. These monuments, similar to the forest in which they are located, represent huge and important culture-generating strength (Jojczyk, 2003, p. 37).

Scope of performing social functions of forests

Performing various functions by forests, including the social function, depends on its category (production forests, protective forests, landscape parks, national parks, nature reserves) and on organizational and managerial activities performed by forest authorities. Among numerous organizational activities performed for the forest are three groups of activities: restrictive activities (e.g. regulations, prohibitions, restrictions); soft activities (indications, persuasions, advice, recommendations), activities through facilities (promotion of ecological behaviours, relax in the forest, cooperation and integration of tourists with forest employees, with inhabitants, business activity started according to green principles), (Muszyński, Kozioł, 2013, p. 93). The categories of forest areas with their functions and organizational and managerial activities are presented in figure. 2.

Figure 2 shows that in certain forest categories, the activities to support or those inhibiting performance of the function are conducted to different degree. The restrictive and limiting activities concern the entrance to the forest areas with increasingly greater importance of forest's environment and preserving the sustainability and biodiversity of the threatened ecosystems in forests. These activities are focused primarily on protection forests, landscape parks, national parks and nature reserves, with particular focus on

Forest category	Scope of organizational and managerial activities	Scope of forest functions
Nature reserves	3 2 1	
National parks	3 2 1	
Landscape parks	3 2 1	

Forest category	Scope of organizational and managerial activities	Scope of forest functions
Protection forests	3 2 1	
Production forests	3 2 1	

1 – activities through facilities, 2 – soft activities, 3 – restrictive activities; ○ – forest functions

Fields in individual geometric shapes point to the scope of activities and performing the forest function.

Figure 2. Forest areas depending on organizational and managerial activities and the scope of functions

Source: author's own study based on: (Muszyński, Kozioł, 2013, p. 93).

strict nature reserves. The smallest limitations of activities and performing various functions are observed in production forests, which are presented and specified in detail in the Act on forests. Limitation of restrictive activities and increasing soft activities and facilities contribute to reduction in the number of conflicts and threats, which will improve the attractiveness of performing social functions in forest areas.

Social, productive and ecological functions of the forest environment also depend on many other factors that cause unfavourable phenomena and

changes in the condition of forests in Poland. Negative factors, which are often termed stress factors, can be classified as abiotic, biotic and anthropogenic (table 1).

Table 1. Negative factors that affect forest environment and its function

Abiotic	Biotic	Anthropogenic
1. Atmospheric factors • weather anomalies – warm winters – low temperatures – late freezes – scorching summers – abundant snow and rime – hurricanes • thermal and humidity factors – insufficient humidity – floods • wind – dominant direction – hurricanes	1. Structure of tree stand • species composition – dominant coniferous species • inconsistent with habitat – coniferous tree stands in forest habitats 2. Pest insects • primary • secondary 3. Fungal infections • leaves and shoots • trunks • roots	1. Air pollution • energy sector • municipal management • transportation 2. Water and soil contamination • industry • municipal management • agriculture 3. Transformation of land surface • mining 4. Fires in forests
2. Soil properties • moisture content – low level of ground waters • fertility – sandy soils – post-agricultural soils 3. Physiographic conditions • mountain conditions	4. Excessive prevalence of herbivorous mammals • animals • rodents	5. Forest damaging practices • poaching and stealing • excessive recreation • excessive picking up of groundcover 6. Improper forest management • schematic procedures • excessive use • abandoning husbandary

Source: (Raport 2010, p. 41.)

Effect of stress factors on forest environment is of complex character and is characterized by the synergistic effect. Anthropogenic factors, connected mainly with direct or indirect effect of human activity, contribute in many cases to changes that occur in biotic and abiotic effects. Periodic intensification of at least one factor can lead to disturbance of biological resistance of forest ecosystems and substantial local and regional threats. The simultaneous effect of many stress factors causes the constant high exposure of forests to diseases and continuity of destructive processes in the forest environment (Raport, 2010, p. 41). Therefore, the synergistic effect of negative factors in the forest environment reduces its resources necessary for performing production and non-production functions, including social functions of the forest.

Conclusions

Based on the analysis of social functions of forests and their threats, several basic conclusions can be drawn.

- Forests are an inseparable form of using the lands that ensure biological production with market value (production function) and general social good that forms the quality of human life (ecological and social function).
- Forest functions, important from the economic and social standpoint, represent a strong basis for values and importance of this area in society today and in the future.
- In cooperation with entities in the tourist, recreational, educational, health and cultural markets, state forest authorities can compose many products and services for various groups of recipients.
- With the dynamic development of social tasks of forests, especially those near urban and industrial centres, these lands, generally accessible in light of Polish legislation, should be adequately prepared for this function.
- Specific attractiveness of forest that takes into consideration e.g. psychophysical and social preferences of varied needs and expectations of citizens, represents a particularly important motivation for organization of various social initiatives in forests (recreational, educational and cultural).
- Development of social functions in forests should not endanger principal tasks of State Forests, which simultaneously perform activities towards sustainability and biodiversity of ecosystems.
- While appreciating the role and importance of activities other than production, the State Forests should utilize adequate management and infrastructure to ensure the most convenient access of society to forests while protecting them from the standpoint of their sustainability for future generations as well as biodiversity and environmental protection.

Proper development of the forest functions, including the social function, will be possible if specific conditions are met. It is essential that the factors (anthropogenic, biotic, abiotic) that endanger forest areas are limited. Strategic plans of forest privatization need to be abandoned as they are likely to inhibit common availability of forests. Furthermore, the authorities of the State Forests National Forest Holding should popularize the beneficial efforts that point to socialization of the process of forest management through inclusion of specialists, scientists, naturalists and local communities.

The contribution of the authors

Jan Sikora – 50%
Agnieszka Wartecka-Ważyńska – 50%

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