

# Forest development and conservation policy in Poland

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## ABSTRACT

Whilst, in many countries, the scale of forest loss from business-as-usual development is immense, in Poland, this problem does not exist. However, obtaining additional land areas for afforestation is a main issue in Poland. In Poland, after the World War II, the forest area has been systematically growing. In 1945, the forest area was about 6.5 million ha, and the forest cover was 21%. In 2016, the forest area reached 9.2 million ha, and forest cover amounted to 29.5%. Today, there are 0.24 ha of forests per one inhabitant of Poland. The size of wood resources in stands is also changing. In 1945, forest resources on the trunk amounted to approximately 906 million m<sup>3</sup>, and in 2016, it reached 2.4 million m<sup>3</sup>. The problem, however, is the uneven distribution of forests in Poland. Forests in Poland are very strictly protected by law. There are two most important acts, Forest Act of 2001 and Nature Conservation Act of 2004, that regulate principles for the retention, protection and augmentation of forest resources. Over the past decades in Poland, the social demands regarding non-economical functions of forest such as recreational activities, soil and water protection and mitigation of global warming became an important and constantly growing challenge for forest managers. Thus we suggest that, first of all, it is very important to extract the leading function for a given forest area. Interactions between development and conservations policies are very tied and may suggest the need of their integration. In this article, we present the concept of development policy for forest management and forest protection in Poland.

## KEY WORDS

forest management, forestry policy, environmental protection, forestry protection

## INTRODUCTION

In recent years, various international bodies have developed numerous recommendations concerning sustainable forest economy (Humphreys 1996; Humphreys and Logjam 2006; Solberg et. al 2017). An example in this respect may be provided by the dynamic development of the Forest Europe process. Within this project, 5 working ministerial conferences and an ex-

traordinary conference have been held to date. They resulted in the adoption of 4 general declarations, 11 resolutions, 2 decisions as well as the Oslo Ministerial Mandate for Negotiating a Legally Binding Agreement on Forests in Europe. In addition, 2 declarations were issued. At present, 47 signatories participate in the process (the European Union and all the 46 states located either entirely or partly in Europe), as well as 14 states and 45 institutions are observers ([© 2020 by the Committee on Forestry Sciences and Wood  
Technology of the Polish Academy of Sciences  
and the Forest Research Institute in Sękocin Stary](http://fores-</a></p></div><div data-bbox=)

teurope.org). Resolutions and decisions adopted within the Forest Europe process in the years 1998–2015 were presented by Kaliszewski and Gil (2017). International focus on sustainable forest economy has generated increasing interest in research concerning the effect of such systems on forest management on the national scale and on the environment. Studies on the effects of international agreements concerning the implementation of forest economy can be found in professional literature, for example, Underdal (1998, 2002 a, b), Victor et al. (1998), Young (1989, 2001, 2011), Kozuch et al. (2016) and Solberg et al. (2017). In addition, the execution of forest policy is increasingly often connected with the implementation of the climate protection policy. The COP21 or 21st Conference of the Parties to the United Nations Framework Convention on Climate Change in Paris (30 November to 11 December 2015) produced the Paris Climate Agreement. This is a global agreement on the reduction of climate change, limiting global warming to less than 2°C compared to pre-industrial levels and to pursue efforts to limit the increase to 1.5°C. In order to keep warming below 2°C, we need to limit our annual greenhouse gas emission with an estimate of 9.8 Gt (Young 1989). To accomplish this, the countries have submitted Intended Nationally Determined Contributions (INDCs) outlining their post-2020 climate action.

Public interest in the national policy concerning rational and sustainable forest economy is increasing with the growing interest in forests observed internationally. Poland is a country with the forest cover of approximately 30%. Within the past 20 years, the State Forest Policy has not been updated or adapted either to the changing socio-economic situation of our country or international conditions. The document does not take into consideration, for example, Poland's accession to the European Union in 2004, progressing globalisation or developments in the climate change policy. Moreover, it does not refer to the commitments undertaken by Poland and resulting from our participation in the Ministerial Conference for the Protection of Forests in Europe (MCPFE), currently operating as Forest Europe (Kaliszewski and Gil 2017). On the other hand, Poland is a country that, for years, has been successfully implementing the policy by increasing its forested area as well as forest protection and conservation. These actions result from the long-standing

tradition, social awareness, patriotism and a series of legal acts. The Nature Conservation Act and the Act on Forest Development and Conservation constitute legal acts varying in their rank. The Constitution of the Republic of Poland, passed in 1997, does not directly refer to forest protection, but it ensures the right of environmental services to every citizen, whereas, at the same time, it imposes on all citizens the obligation to protect the environment. Specific regulations concerning forest development and conservation are given in the acts and in the respective secondary legislation (implementing regulations) as well as other regulations. Apart from the national legislation, the forest environment is protected, as the common good of the entire mankind, through conventions and international agreements ratified by Poland. In view of the above, it was decided to conduct a scientific evaluation of the forest development and conservation policy implemented in Poland. In the first stage of the study, the status of forest resources in Poland was characterised based on statistical data and available literature. The next stage of the study consisted in analyses of major legislation regulating forest economy and forest conservation in Poland. The following legal acts were analysed: (i) the Act on Forests, (ii) the National Programme for Increasing the Forest Cover, (iii) the State Forest Policy, (iv) the Act on Environmental Protection and (v) the Act on Nature Conservation. The study is based on the scientific analysis of source materials and literature, the analysis of phenomena and economic processes taking place in forestry, the authors' knowledge and a synthesis of research results.

## CHARACTERISTICS OF FORESTS IN POLAND

Poland is a country with an average level of forest resources both on the European and global scale. In 2016, in Poland, the forested area was almost 9.2 million ha forests, of which approximately 7.5 million ha are public forests and approximately 1.7 million ha are private forests. In that year, Poland's forest cover was 29.5%, an equivalent of 0.24 ha forest per capita. Public forests comprise forests owned by the State Treasury (approximately 7.3 million ha, including 7.1 million ha managed by the State Forests Holding) and 186,000 ha in national parks. A detailed list is given in Table 1.

**Table 1.** Forest land (as of 31 XII)

Specification	1995	2000	2005	2010	2015	2016
Total in 1,000 ha	8,946	9,059	9,200	9,329	9,420	9,435
Forests	8,756	8,865	9,000	9,121	9,215	9,230
Public	7,262	7,341	7,410	7,435	7,450	7,456
Owned by State Treasury	7,186	7,262	7,328	7,351	7,345	7,351
Managed by the State Forests	6,868	6,953	7,042	7,072	7,100	7,105
National parks	162	181	183	184	185	186
Gmina owned	76	79	82	84	84	84
Other public	59	59	44	36	49	49
Private	1,494	1,524	1,590	1,686	1,765	1,774
Forest cover (%)	28.0	28.4	28.8	29.2	29.5	29.5

Source: Central Statistical Office. Forestry. Warsaw, 2017.

After 1945, Poland considerably increased both its forested area and standing timber resources. In 1945, the forested area in Poland was approximately 6.5 million ha and the forest cover was 21%, whereas forest resources amounted to approximately 906 million m<sup>3</sup> timber. At present, forest resources are approximately 2.4 billion m<sup>3</sup> timber, of which approximately 2 billion m<sup>3</sup> was within the State Forests. Moreover, the species composition and age structure of stands have also changed. In 1945, 87% of the area was covered by coniferous species, with deciduous species accounting for 13%. At present, approximately 70% of the forested area is covered by coniferous species and approximately 30% by deciduous species. In 1945, stands aged maximum 60 years accounted for approximately 65% forested area, whereas it is approximately 55% at present. This indicates an increase in the share of older stands, which, from the economic point of view, is not always desirable. Another characteristic of forestry in Poland is also connected with the uneven distribution of forests throughout the country. The central provinces have a markedly lesser forest cover, amounting to approximately 20%, whereas the northern and western provinces have a greater forest cover, exceeding 30%. The highest forest cover level of almost 50% is found in the Lubuskie province, whereas the lowest is recorded in the Łódzkie province with approximately 21%. The mean stand timber resources amount to 266 m<sup>3</sup>/ha, with 275 m<sup>3</sup>/ha in public forests and 228 m<sup>3</sup>/ha in private forests. The mean age of stands is 56 years, with 58 years

in public forests and 47 years in private forests. Moreover, it needs to be stressed that in the State Forests approximately 52% of the forests is protection forests and nature reserve forests. In Poland, forests are treated as a national treasure; for this reason, a vast majority of the population (with some exceptions) care for the development and increase in forest resources. Owning a forest in Poland is slowly becoming a status symbol of prosperity and prestige.

## DIRECTIONS FOR FOREST DEVELOPMENT AND CONSERVATION IN POLAND

The major legal acts regulating the directions of forest development and conservation in Poland include the Act on Forests of 1991 (and the State Forest Policy of 1997) and, to a lesser extent, the Act on Nature Conservation of 2004 and the Act on Environmental Protection of 2001.

The Act on Forests defines the principles for the maintenance, protection and increase of forest resources. The act specifies that the primary objectives of forest economy include (i) preservation of forests and their advantageous effect on the climate, air, water, soil, living conditions and human health as well as ecological balance; (ii) conservation of forests, particularly their natural fragments and those of exceptional value thanks to other aspects; (iii) protection of soils and vulnerable areas exposed to increased risk of damage or pollution; (iv) protection of surface and ground waters; and (v) production of timber and other forest products following the principle of sustainable management.

We need to stress the fact that ecological and social goals are priorities over economic objectives. Moreover, the Act on Forests specified the principles for forest economy. The principle of universal forest protection assumes that all forests are subject to protection irrespective of their form of ownership and that all persons are obliged to protect forests. The principle of sustainability of forests and their sustainable management assumes the necessity of on-going regeneration of forest resources, preservation of their biodiversity and genetic richness. The principle of continuity and sustainable utilisation of all forest functions imposes the need for the on-going rational limitation of utilisation of selected forest functions, in order to facilitate such use of other

functions. The principle of increasing available forest resources is realised based on the afforestation and enhanced productivity of forests – through increased increments in the volume of timber per unit area. The State Forest Policy, adopted by the Council of Ministers in 1997, states that forests are the most natural nature formation inseparably connected with the Polish landscape for ages and as such they are indispensable factors of equilibrium in the natural environment determining the country's development, which justifies the state intervention into the principles of management in forests. The fact that forests serve many vital and diverse functions makes them important elements of Poland's ecological security and, for this reason, the policy and forest economy have the strategic rank comparable to that of military, social or energy security. The forest policy is an integral part of the social, ecological and economic security of Poland. In relation with the increasingly broad range of these social and ecological functions served by forests, the costs of forest economy are increasing accordingly; thus it was decided to assume in the state forest policy the principle of limited self-financing of forestry economic activity, which will require subsidising from special earmarked funds or from the state budget. It was assumed that the complete systemic financing of forest economy by the state budget and special earmarked funds will be implemented by 2020. It seems rather unlikely for this objective to be met by 2020 because of other urgent developmental needs of Poland. That document assumes that Poland will reach the forest cover of 30% by 2020 and 33% after 2050. In order to meet its obligations concerning forest development, Poland adopted a long-term National Programme for Increasing the Forest Cover in 1995, which is being successfully implemented. Table 2 presents the data on afforested area in Poland from 1945 to 2016. It clearly results from these data that the greatest scope of afforestation was observed in the years 1950–1970, with approximately 40,000 ha afforested annually. It was connected with the afforestation of large areas after The Second World War because of war damage, abandoned land and the transfer of rural populations to urban areas. In the years 1971–1995, the process of afforestation slowed down because of a shortage of available land and a lack of incentives for farmers to transfer their land for afforestation purposes. In 2001, in Poland, the Act on Allocation of Farmland to Afforestation was passed,

**Table 2.** Afforestation of land in Poland in 1945–2016

Specifications	Total	Forests	
		of the State Treasury	Not owned by the State Treasury
	in 1,000 ha		
1945–1949	67.0	58.4	8.6
1950–1955	185.7	93.1	92.6
1956–1960	226.5	114.5	112.0
1961–1965	277.6	152.1	125.5
1966–1970	176.7	106.0	70.7
1971–1975	94.1	55.5	38.6
1976–1980	78.5	47.5	31.0
1981–1985	31.7	21.2	10.5
1986–1990	35.9	21.6	14.3
1991–1995	53.4	35.2	18.2
1996–2000	95.7	58.2	37.5
2001–2005	95.4	46.3	49.1
2006–2010	49.6	12.9	36.7
2011–2015	20.4	2.9	17.5
2016	2.0	0.6	1.4
1945–2016	1490.2	826.0	664.1

Source: Central Statistical Office. Forestry. Warsaw, 2017.

which introduced financial incentives for farmers allocating their land for afforestation. This resulted in a short-term increase in the afforestation rate. Starting from 2004, that is, Poland's accession to the European Union, farmers have been able to use EU programmes promoting afforestation within the framework of the rural development programme. However, the simultaneous development of residential housing sector and road construction projects as well as the service sector has hindered the process of land transfer for afforestation. At present, approximately 2,000 ha are afforested annually. At the same time, Poland has very strict regulations concerning the conversion of forest land to allocate it to other forms of land use. Thus the deforested area is small, amounting to approximately 500 ha annually. Detailed data are given in Table 3. The major types of deforested areas include sand and gravel mines, excavations of mineral deposits as well as land allocated for industrial development. The Act on Nature Conservation of 16 April 2004 concerns the protection of trees and shrubs growing outside forests. Nature conservation,

**Table 3.** Forest land designated for non-forest purposes in Poland

Specifications	2005	2010	2015	2016
	ha			
Total	472	551	738	447
Forests: public	310	412	413	181
private	162	139	325	266
Directions of designation				
Minerals	222	330	442	218
Areas: industrial	78	88	121	106
communication	41	24	10	6
residential	26	41	36	30
reservoirs and water devices	4	4	0.4	0.2
others	101	65	128	87

Source: Central Statistical Office. Forestry. Warsaw, 2017.

within the meaning of that act, consists in the preservation, sustainable use and restoration of resources, creations and components of nature such as plants, animals, fungi, habitats, landscapes, urban and rural green areas as well as tree plantings. The commune councils are required to establish and properly maintain green areas and tree plantings. Land owners have to obtain a permit to remove trees and shrubs subject to adequate fees. In the case of tree or shrub removal without the required permit, the commune authorities impose financial fines. Fees for the removal of trees and shrubs as well as fines for their unauthorised removal are dependent on the type and species of the tree and stem circumference.

## DISCUSSION

European forests co-evolved with humans since the beginning of the Holocene, and their current distribution, structure and dynamics represent a long history of clearing, alteration and management (Fuchs et. al 2008; Kaplan 2009; Kaplan et. al. 2012). Shaped by human activities, forests were a main sector of the economy providing food (e.g. hunting, livestock grazing and plant products), timber products (e.g. lumber for construction and naval fleets and pulp for paper), fuel (e.g. firewood and charcoal) and other important resources (e.g. potash and tar). The importance of forest resources, which can

be quickly exhausted by unrestricted use, provided the impetus for forest mapping, inventory and management. Forests in Poland are subject to public interest. They are protected by several legal acts passed by the parliament, mainly the Act on Forests of 1991 and the Act on National Strategic Resources of 2001. Moreover, the State Forest Policy of 1997 and the National Programme for Increasing the Forest Cover of 1995 propose solutions stimulating the development of forests and forestry in Poland. Both the National Programme for Increasing the Forest Cover and the State Forest Policy assume an increase in Poland's forest cover to 30% in 2020 and 33% after 2050. These programmes seem feasible, although we face increasing problems with their implementation. As it was reported by Kaliszewski (2016), the problem with further execution of afforestation programmes results from a lack of available land for afforestation. This is a consequence of direct payments within the framework of the EU subsidies to agricultural production, no possibilities for afforestation of permanent grassland and limited afforestation potential in the Natura 2000 areas. In the opinion of the authors of this study and other researchers, Poland's forest cover exceeds by approximately 2% the level officially recorded by the Main Statistical Office. This results from considerable problems and costs related with the conversion of farmland to forest and still greater difficulties faced when converting forest land to farmland or plots for development investments. For this reason, land owners frequently do not notify the authorities of afforestation they have performed or that resulting from natural succession. The actual forest cover in Poland in 2014 was already 32%. Moreover, some authors indicated the problem with an adequate definition of forest, which also affects the value of the forest cover index. In Poland, forests are protected within the framework of three groups of functions, that is, productive, ecological and social (Zajac 2001; Plotkowski 2004; 2008; Zajac and Gołos 2008; Adamowicz and Kaciunka 2014; Kaliszewski and Młynarski 2014; Adamowicz et. al 2015; Kaliszewski 2016; Szramka et al. 2016). The basis of planning (not only in forestry) is making decisions about actions to be taken in the future, including knowledge about the past and present. Planning in forest management is commonly determined by minated paradigm and goals of its implementation (Adamowicz et. al 2016; Robinson et al. 2016). Within the productive function of forests, all



forestry operations are planned so that they promote the development and protection of existing resources. This is confirmed by an increase in the forest area in Poland from 6.5 million ha in 1945 to 9.2 million ha in 2016, an increase in standing timber resources from 906 million m<sup>3</sup> in 1945 to 2.4 billion m<sup>3</sup> in 2016 as well as an increase in the forest cover from approximately 21% to approximately 30%. It results from a study by Szramka (2008) that in 1951–1975 (analyses concerned 5-year periods), the volume of harvested timber slightly exceeded 70% of the current volume increment only in one 5-year period. At present, in Poland, approximately 60% of the timber volume increment is harvested. One of the pillars of the Polish economy is the wood industry. Its share in the sold production of the entire processing industry is around 10%. The consumption of wood products is constantly growing, and thus the role of the wood industry in the national economy is also growing (Adamowicz and Noga 2014). Within the framework of ecological functions, Poland is starting to refrain from harvesting timber in areas of nature value, creating the so-called ecological areas, and in areas, in which forests were damaged on a wide scale by winds, in the most valuable fragments, the so-called reference areas are formed, in which processes of natural forest regeneration are observed and investigated. Moreover, in traditional felling areas, clusters of trees and shrubs are left until their natural decomposition. Within the framework of social functions, special forest parking facilities, forest education centres as well as cycling, horse-riding and walking trails are established to ensure safe and organised opportunities to use the forest value. Moreover, forestry is an important element in rural development, as it has been indicated by several authors, for example, Adamowicz (2005, 2008), Szramka (2005, 2006, 2008), Liu et al. (2018), Pereira and Martinho (2017) and Bjarstig and Stens (2018). The forest offers jobs to the local residents, primarily in rural areas. Moreover, Poland has a long-term tradition of picking wild mushrooms and fruit for family needs, which, apart from their tangible material value, offers an opportunity to rest and relax in the forest. At present, in Poland, the focus is definitely on the performance of social functions, while still considering economic and ecological functions. Several documents and publications, for example, the State Forest Policy of 1997, indicate a conflict between forest functions. We are of an opinion that this is an overgeneralisation, be-

cause there is no conflict between forest functions. The forest serves all these functions simultaneously, but to a varying degree, whether or not we specifically name them. These functions exist, and they are fulfilled. Obviously, the use of some functions to a certain extent limits the use of other functions in the same area and in the same period. In contrast, there is a conflict between expectations of various social groups concerning forests; for this reason, it seems advisable to identify a leading function in a given forest area for which it will be the primary function and treat the other functions as subordinate to the leading function. This should result in the alleviation of social conflicts in view of the opportunity to use non-productive forest functions, which is an important goal for the multi-functional and sustainable forestry in Poland.

## CONCLUDING REMARKS

In Poland, we do not observe the problem of deforestation or a decrease in forest area. Since WWII, the forested area, the volume of standing timber resources and forest cover in Poland have been systematically increasing. After 1945, on an average, the forested area increased by approximately 20,000 ha annually. At present, this process has slowed down, because approximately 2,000 ha are afforested annually. Owing to considerable problems and costs, a slight share of forested area is allocated to other uses. In 2005–2015, the average annual deforested area was approximately 550 ha, whereas in 2016, it was only approximately 450 ha. As a result, the forest cover of Poland has been systematically increasing. We may also observe a continuous forest development in terms of an increase in standing timber resources. At present, it is approximately 2.4 billion m<sup>3</sup> timber. In the early 1990s, it was decided to abandon the raw material-centred management and the principles of sustainable and multifunctional forest economy are now being successfully implemented. At present, apart from the economic function yielding approximately 40 million m<sup>3</sup> timber and providing jobs for approximately 27,000 employees, social and ecological functions are also successfully fulfilled. Forest development is financed almost solely from the funds of the State Forests economic activity, because very few other sources of funding are available. Since 2010, the State

Forests have not received funds from the state budget to execute the National Programme for Increasing the Forest Cover. Moreover, private forest owners and local government bodies are not very willing to allocate land for afforestation. Thanks to the well-established social awareness, educated forestry workers and great respect for forests resulting from our historical traditions, the area of forests has been increasing in Poland and foresters as work force are well perceived by the general public.

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