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Not only sale of wood: diversification of sources of revenues in selected European public forest enterprises

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ABSTRACT

Economic viability of forestry is one of the key pillars of sustainable forest management and a basis for maintaining forests and their multiple benefits for the society. It may be achieved by, inter alia, diversification of sources of income in forest management. The aim of the article is to analyse sources of revenues of state-owned forest enterprises (holdings) in selected European countries and ongoing changes in this respect in recent years. In the paper, we analyse the structure of revenues of state forest enterprises in Poland, Germany (with the examples of Bavaria and Lower Saxony) and Austria; however, particular attention is paid to the State Forests National Forest Holding in Poland, which is the largest state-owned forest holding in the European Union (EU) in terms of area of forests. The study is based on document content analysis methodology (desk research), including annual reports published by forest enterprises, statistical data and also legal regulations.

The analysis shows that while revenues from the sale of wood are the main source of income of forest enterprises, some of them are seeking to diversify their sources of revenues. The Austrian Federal Forests can serve as an example of a good development strategy based on diversified sources of income. Also, the Lower Saxony State Forest company, which is approximately 60% dependent on the sale of wood, undertakes other activities, including real estate management, hunting and recreational services. Our study shows that both the State Forests National Forest Holding and the Bavarian State Forests Enterprise are based on timber harvest and sale to a large extent. We conclude that as regards the State Forests Holding in Poland, the possibility of expanding and diversifying commercial activities should become a subject of discussion among foresters, decision makers and politicians.

KEY WORDS

revenues, diversification of incomes, state-owned forests, forest enterprises, forest policy

INTRODUCTION

Maintenance of high economic potential of forest enterprises and farms is the cornerstone of sustainable forest management. Traditionally, the major source of income of forest holdings is the sale of wood. The grow-

ing social demand for provision of non-market goods and services, such as ecosystem services or some non-wood forest products, may result in the increase in costs of forest management on the one hand, and may lead to reduction in the volume of harvested wood on the other, which in turn leads to a drop in revenue from the main

source. In case of significant, long-lasting downturn in timber market, the reliance of forest holdings solely on the sale of wood may jeopardise their economic stability and result in reduction in the provision of non-market ecosystem services and other social goods. However, this risk can be reduced to some degree by diversification of activities and sources of income, by expanding and broadening a range of products and services provided by forest holdings.

Diversification is one of the basic development strategies of enterprises. Diversification of activities and the related sources of revenues allows the risk to be dispersed and possible losses to be compensated by profits made in one of other areas of operation (Wieteska 2011). In the literature on finance, diversification is closely related to the portfolio theory and ‘a diversified portfolio of assets’ (Markowitz 1952). It comes down to the selection of such portfolio components that simultaneously reduce risk and maximise profit (Pieniacka 2016).

Diversification itself is often divided into market and financial ones. Market diversification consists in expanding the company’s activity to areas in which the enterprise can better use its capabilities or certain resources. Financial diversification is associated with the company’s involvement in areas not related to its current operations, and its major motive is to optimise the global financial policy of the firm. The benefits of diversification include strengthening the company’s competitive position, spreading risk, improving resource use and stabilising its development. At the same time, the threats related to diversification are primarily linked to the possibility of losing the current profile of activity, difficulties in management and an increase in fixed costs (Shapiro and Varian 2007).

Comparative research in social sciences is based on the essential assumption that the examined systems or their institutions contain comparable elements or features, similar at least to a certain extent, and that systems shaped in similar conditions may show unrecognised or underestimated differences (Bartlett and Vavrus 2017). European countries are characterised not only by significant similarities in the overall objectives of forestry policy (Kaliszewski 2018a), but also by significant differences in the selection of measures and instruments adopted to achieve these objectives (Hummel and Hilmi 1989).

Over recent decades, forest policy in Europe has primarily been influenced by the agreements adopted as part of the Forest Europe process, bringing together the European Union (EU) and all European countries, as well as by the EU policies. Both processes – the EU and Pan-European – influence each other strongly and also complement each other (Kleinschmit and Edwards 2013). One of the main forestry goals formulated within both the processes is preservation and improvement of its economic viability, as a key pillar of sustainable forest management and a basis for maintaining forests and their multiple benefits for the society. It may be achieved by, inter alia, diversification of sources of income in forest management (Kaliszewski 2018b), which allows maintaining economic stability of forest holdings, as well as biological diversity, which is necessary to ensure stabilisation of ecosystem services provided by forest management (Knoke et al. 2017).

The aim of the article is to analyse sources of revenues of state-owned forest enterprises (holdings) in selected European countries and the ongoing changes in this respect in recent years. An important issue of the research was to determine the share of revenues from the sale of wood and other sources in the total revenues of the holdings. Particular attention was paid to the State Forests National Forest Holding in Poland or *Państwowe Gospodarstwo Leśne Lasy Państwowe* (hereinafter referred to as PGLLP or the State Forests), which is the largest state-owned forest holding in the EU in terms of area of forests (Eustafor 2016).

In the paper, we analyse the structure of revenues of state forest enterprises in Germany (with the examples of Bavaria and Lower Saxony) and Austria that operate in similar natural and socioeconomic conditions. The enterprises in question arose as a result of transformation of unprofitable forest holdings into financially independent entities that are obliged to provide broadly understood ecosystem services and social functions in public forests (Klocek 2006). In this respect, they are similar to the PGLLP, which is also obliged to provide diverse forest services and functions (natural, economic, social) and to cover operating costs from its own revenues.

MATERIAL AND METHODS

In the study, we used document content analysis methodology (desk research), i.e. the analysis involving the collation and synthesis of existing available data from various sources (McNabb 2010). We analysed sources of revenues of public forest enterprises in selected European countries. In particular, the analysis covered: a) PGLLP in Poland, b) Bavarian State Forests Enterprise (*Bayerische Staatsforsten AöR* [BSF]; Germany), c) Lower Saxony State Forest (*Niedersächsische Landesforsten AöR* [NLF]; Germany) and d) Austrian Federal Forests in Austria. The basic source of information was the annual reports published by the above companies. This information was supplemented with statistical data and – in some cases – by legal regulations. The analysis covered the period of 2011–2018, except for the NLF, for which, due to the availability of data, the analysis covered the period from 2013 to 2018.

RESULTS

The State Forests National Forest Holding (Poland)

The PGLLP in Poland manages lands of a total area of 7,609,000 ha, of which 7,313,000 ha is covered by forests. From a formal point of view, the PGLLP has no legal personality and is supervised by the Minister of the Environment. The company employs 26,400 people, including 17,600 in the Forest Service. In 2018, timber harvesting in the PGLLP amounted to 43.3 million m³ (over bark). The net profit of the farm in the same year amounted to 537.1 million Polish złoty (PLN) (DGLP 2019).

According to the provisions of the Forest Act of 1991, the PGLLP is obliged to conduct business on the basis of financial self-sufficiency and cover the costs of this activity from its own revenues. The activities of the State Forests are categorised as follows:

- *administrative activities* related to exercising direct management over the forests owned by the State Treasury, as well as forest management planning;
- economic activity related to forest management, conducted in forest districts, divided into *core business* (forest protection, the maintenance and augmentation of forest resources, the acquisition – other than by purchase – and sales of raw wood) and *non-*

wood forest production, involving game management, the acquisition – other than by purchase – of resin, Christmas trees, stumpwood, bark, needles, game animals and forest fruits and mushrooms, as well as the sale of these products and

- *ancillary activities*, excluded from forest management, provided on commercial basis by organisational units of the State Forests (Ustawa 1991).

It is worth noting the distinction between the non-wood forest production and the ancillary activities. These concepts are often commonly used probably due to the additional – in relation to the production and sale of wood – nature of both types of activity. The non-wood forest production of the State Forests is directly related to the non-wood forest use, focused on direct material goods, including the raw materials and products obtained in the forest, excluding wood (Grochowski 1990). This definition is, however, narrower than the commonly used concept of ‘non-wood forest use’, which, in addition to non-wood forest products, also includes the use of non-wood forest services (Staniszewski 2015). The ancillary activities of the State Forests are excluded from forest management and cover, in particular, transport and workshop services, industrial production, commercial services, agriculture and fisheries. In financial terms, revenues from the non-wood forest production of the PGLLP may not be lower than the associated expenses, while expenses related to the ancillary activities may not be higher than their purchase outside the State Forests Holding (Rozporządzenie 1994).

The main source of revenues of PGLLP is the sale of wood. In 2018, the revenues in this area amounted to 8544.3 million PLN (Fig. 1) and were over 13 times higher than in 1992 (655.8 million PLN, after denomination in 1995, current prices) and exceeded more than twice the revenues in 2005 (3926.3 million PLN). The share of revenues from the sale of wood in PGLLP increased in the period 1992–2018 from 74% to over 87% of the total revenues of the holding, while in recent years this growth has been halted.

The share of revenues from non-wood production and ancillary activities as compared to revenues from the sale of wood is rather small. In 2018, the non-wood production brought 0.60% of the total revenues (59.5 million PLN) and over the last 8 years, it ranged from 0.60% in 2018 to 0.84% in 2012. In 1992, this share

amounted to 2.1% and in 2002, it was 1.0% (DGLP 2003, 2019), which indicates its continuous decrease. In this category, revenues from game management are most important and represent over 90% of revenues from the non-wood production.

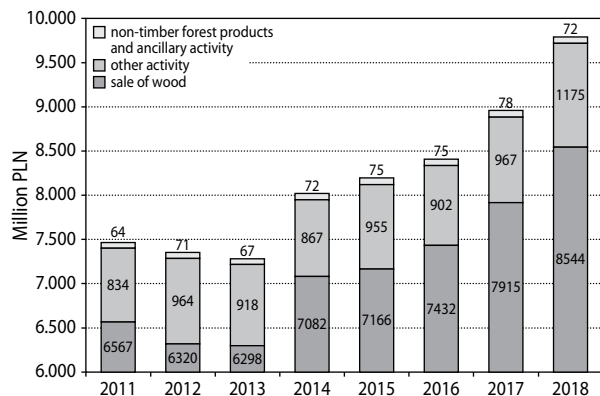


Figure 1. The structure of revenues of the State Forests National Forest Holding in 2011–2018

Source: Annual reports of the PGLLP (DGLP, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012)

In 2018, the incomes from the ancillary activities accounted for 0.13% of the total revenues of the State Forests. Their share over the period 2011–2018 ranged from 0.10 to 0.15%. Other revenues of the State Forests (12.0% in 2018) are generated by, among others, administrative activities and the core business (excluding the sale of wood) or incomes from supervision over forests not owned by the State Treasury (DGLP 2019).

The BSf (Germany)

The BSf is the largest forest enterprise in Germany and manages state forests in Bavaria on behalf of the Free State of Bavaria. It is a company with legal personality that operates as an institution under public law (*Anstalt öffentlichen Rechts*). The BSf is entitled to free use of 808,000 ha of state-owned lands transferred for its administration, 756,000 ha of which consists of forests. The legal supervision over the enterprise is exercised by the Ministry of Food, Agriculture and Forests (StFoG 2005). The enterprise employs 2.4 thousand people. In 2018 marketing year (i.e. from 1 July 2017 to 30 June 2018), timber felling amounted to 4.79 million m³. The company’s net profit in the same period amounted to 20.2 million € (BSf 2019).

In 2018, the BSf’s revenues amounted to 371.9 million €, including 331.0 million € from timber sales, which accounted for 89.0% of all revenues (Fig. 2). Since 2012, both revenue from the sale of wood and their share have remained at a similar level (89%–91%). Revenues from hunting and fishing remained in the following years at a similar level of approx. 7 million €, which accounted for 1.6%–1.8% of all enterprise revenues. These revenues mainly include incomes from the sale of game meat (approx. 40%), the sale of hunting permits (25%) and the lease of hunting grounds (20%).

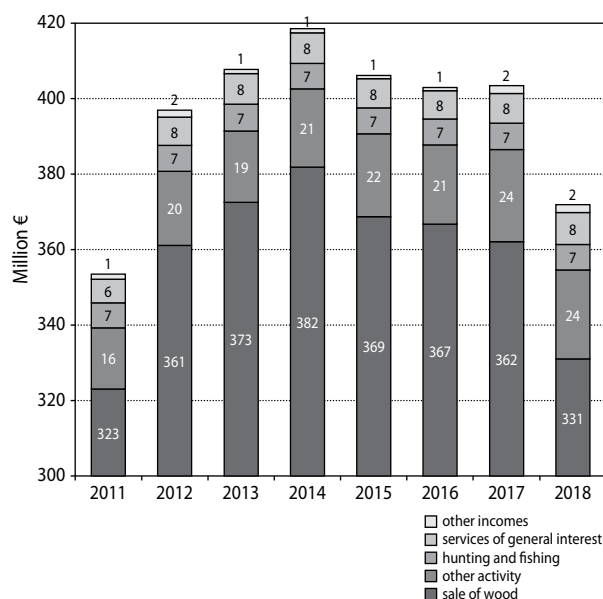


Figure 2. The structure of revenues of the Bavarian State Forests Enterprise in 2011–2018

Source: Annual reports of the BSf (BSf, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012)

An important area of business of the BSf corresponds to the statutory obligation to provide services of general interest (*Gemeinwohllleistungen*), including maintenance and improvement of condition of protective forests in the mountains, restoration of natural conditions of marsh areas, maintenance of bicycle and walking routes, as well as maintenance of playgrounds and recreational areas. Financial means for this activity are granted from the Bavarian state budget. In the period of 2011–2018, revenues of the enterprise under services of general interest amounted to around 7–8 mil-

lion € and their share in the company's total revenues ranged from 1.8% (2011) to 2.3% (2018).

Other activities (*weitere Geschäfte*) include initiatives to diversify the company's revenues and reduce its dependency on the situation on the wood market. Revenues in this category in subsequent years increased from 16.2 million € in the 2011 marketing year to 23.6 million € in 2018, as did their share in total revenues (from 4.6% to 6.3%). Very diverse activities have been qualified for this area, including revenues from the extraction of raw materials and waste dump maintenance, leisure and recreation, transport and agriculture, as well as natural areas and renewable energy.

In recent years, particularly noteworthy is the increase in revenues from renewable energy production. They include incomes from the lease of lands for wind farms and photovoltaic installations, as well as revenues resulting from the establishment of a subsidiary that produces energy from wood supplied by the BSf and also from shares in one heat and power station co-fired with woody biomass. Revenues in this area have been steadily growing from 1.5 million € in 2012 to 2.7 million € in 2017 and 2.4 million € in 2018.

In the same period, the company's revenues from the sale of tourist and recreational services increased significantly from 2.5 million € in 2012 to 4.3 million € 6 years later. Incomes include, among others, fees for the lease of land for roller coasters, ski lifts and campsites. An important source of revenue since 2016 has been the treetop path in the Steigerwald mountains (BSf 2019).

The NLF (Germany)

The state-owned forests in Lower Saxony are managed by the NLF company, which, like the BSf, operates as an institution under public law (*Anstalt öffentlichen Rechts*). The company is supervised by the Lower Saxony Ministry of Food, Agriculture and Consumer Protection. The NLF manages 335,000 ha of lands, of which 323,000 ha consists of forests. In addition, the NLF looks after 85,000 ha of forest for municipalities and forest cooperatives as a service provider. The enterprise employs approx. 1.3 thousand people. In 2018, timber harvesting amounted to 2.8 million m³, of which 2.3 million m³ was wood from natural disaster areas (hurricane, bark beetle). That year was closed with a net loss of 1.7 million € (NLF 2019). A year earlier, how-

ever, the company generated a net profit of 6.4 million € with the harvest of 1.7 million m³ of wood (NLF 2018).

In 2018, the company's turnover amounted to 191.8 million €, which was significantly higher than in recent years (Fig. 3). Timber sales generated over 60% of all revenues (117.3 million €), while real estate management brought 4.5% and non-timber forest products and services 3.1% of all incomes. This category includes incomes related to environmental compensation for the use of the forest environment and revenues from contracts concluded by the enterprise for the protection of specific natural objects. Revenues from hunting were at a similar level (2.6%). Incomes related to the development of tourist and recreational services accounted for 1.4% of all NLF revenues. It should be noted that implementation of forest protection measures, providing recreational functions, care and support for owners of municipal and private forests and some obligations of public administration, are financed by the state of Lower Saxony. In 2018, these subsidies amounted to 23.6 million €, i.e. 12.3% of all the company's revenues (in 2017, it was 23.3 million €, i.e. 14.7% of the revenues).

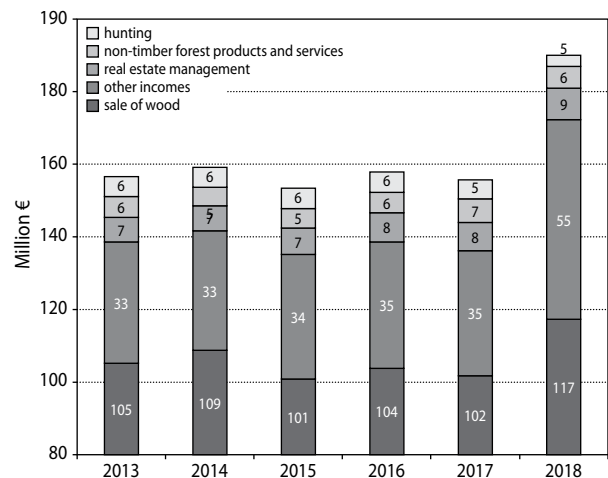


Figure 3. The structure of revenues of the Lower Saxony State Forest in 2013–2018

Source: Annual reports of the NLF (NLF, 2019, 2018, 2017, 2016, 2015)

Incomes in individual categories of business operations, and thus, their share in the total revenues in 2011–2017 were stable. In 2018, the situation changed significantly – revenues from the sale of wood had considerably increased (which was associated with in-

creased timber harvesting due to natural disturbances) – same as from the category of other revenues. The share of revenues from real estate management, non-wood forest use and hunting did not change significantly.

Austrian Federal Forests (Austria)

Forest management in Austrian federal forests was entrusted to the joint stock company Austrian Federal Forests (*Österreichische Bundesforste AG* [ÖBf]). The company is the largest ecosystem manager in the country and is responsible for 10% of the country's land area, i.e. some 850,000 ha, 510,000 ha of which consists of forests (i.e. around 15% of Austria's forest area), 26,000 ha is meadows, pastures and Alpine areas (secondary areas in terms of productivity) and 314,000 ha consists of water as well as wet and non-productive areas (ÖBf 2019). The sole shareholder of the company is the Republic of Austria, and the rights to shares are guarded by the Federal Minister for Agriculture, Regions and Tourism. Each year, the company pays a contribution to the budget of the Republic for the right to manage its lands (usufruct fee and dividend). The company is statutorily obliged to achieve the best possible economic results of the production and use of wood, non-wood products, as well as implementation of contracts for conservation and tourism development in two national parks (Bundesforstegesetz 1996). The ÖBf employs 1.1 thousand people. In 2018, the timber harvest amounted to 1.5 million m³. The company's net profit this year was 20.0 million € (ÖBf 2019).

Austrian Federal Forests operate within four main areas of activity:

- forest management, production and sale of wood, timber trade, hunting and fisheries;
- renewable energy production;
- real estate management, including rent of buildings and plots, tourist and recreational development, water lease, acquisition of mineral resources and
- services, including management of natural areas, use of machinery and other forestry services (ÖBf 2019).

In 2018, the ÖBf AG turnover amounted to 227.9 million €, which was similar to the result achieved in previous years (Fig. 4). Less than half of the revenues (49.7%) came from the sale of own wood. In 2011–2018, this ratio remained at a similar level, only once exceeding 50% (2012).

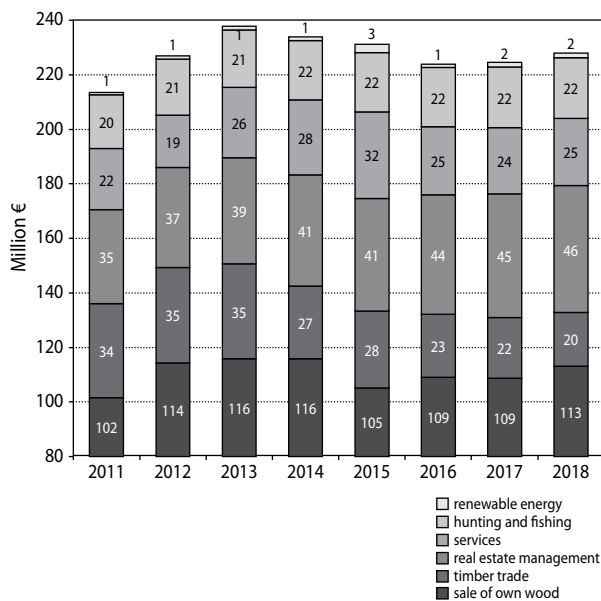


Figure 4. The structure of revenues of the Austrian Federal Forests in 2011–2018

Source: Annual reports of the ÖBf (ÖBf, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012)

The share of incomes from property management in 2018 amounted to 20.4% (46.4 million €) with increasing trends found in recent years (from 16.2% in 2011). The increase results from the growth of earnings from tourist and recreational development of forests (cooperation with municipalities) and the sale of tourist services, as well as the lease and rental of buildings and plots. Incomes from hunting are also increasing – from 17.2 million € to 20.3 million € in 2011–2018 (i.e. from 8.1% to 8.9% of all revenues).

Noteworthy is the relatively high share of revenues from services in the company's total revenues (10.8%). About two-fifths of the revenues in this category are those from natural space management (*Naturraummanagement*), included in the company's external services. These activities include the protection and development (including tourist infrastructure) of federal land within two national parks, the Wienerwald Biosphere Park and other valuable natural areas, and are funded from the federal budget or the budgets of federal states. The revenues for managing natural space in individual years accounted for 2.6% (2012) to 3.7% (2018) of the ÖBf AG revenues.

The ÖBf is also involved in the production of energy from renewable sources. The company has one wind

farm and hydroelectric power plant; it also has shares in five other hydropower plants and one biomass-fired power plant in Vienna. In the years 2011–2018, annual revenues from this activity ranged from 0.9 to 3.0 million €, and their share of the company's total revenues ranged from 0.4% to 1.3%.

DISCUSSION

Revenues in forestry depend mostly and will probably always depend on the sale of wood. High demand for wood, a universal and renewable raw material and product as well as a source of renewable energy source, assures profitability of forest companies and offers them opportunities to develop. Demand for wood, however, is also subject to fluctuations depending on the economic situation, which translates into economic results in forestry. Therefore, it seems necessary for forest enterprises to search for solutions that allow for diversifying sources of income and reducing dependence on the situation in timber markets.

Diversification of sources of revenues is one of the most important ways to reduce risk in forest management. Both at present and in the predictable future, economic viability of forest companies will significantly depend on changing environmental and social conditions.

One of the most important conditions is climate change. In recent decades, an increase in frequency of hurricane winds as well as in their speed and strength have been observed (Brázdil et al. 2018; Dupont et al. 2015; Usbeck et al. 2010). In the years 1950–2000, storm winds destroyed on average 18.7 million m³ of wood in European forests (Schelhaas et al. 2003). In 1999, the cyclones Lothar and Martin fell down or significantly damaged 176 million m³ of wood in France (which was three times the volume of timber harvested in that country) with an estimated value of 6–7 billion € (Hanewinkel and Peyron 2013). The cyclone Lothar also damaged 30 million m³ of timber in Baden-Württemberg (Hartebrodt 2004) and 14 million m³ in Switzerland, resulting in losses of up to 1.7 million CHF (Swiss francs) (Bründl and Rickli 2002). Moreover, in 2005, the cyclone damaged forest stands with a total volume of 75 million m³ of wood in Sweden. It also caused large losses in forests in Latvia (7 million m³) and Denmark

(2 million m³) (Haanpää et al. 2007). Also, in Poland, heavy storms have repeatedly caused great damage in recent years, including that in the Pisz Forest in 2002 (17,000 ha of completely destroyed forests, damaged volume of timber amounted to 3.6 million m³) (Strategia 2003) and in the southern and southwestern parts of the country in 2007 (1.5 million m³ of wood) (Kwiecień 2007). However, the greatest damage was caused by the 'Storm of the Century' in August 2017 in northern Poland, which damaged 10 million m³ of wood in an area of about 80,000 ha (Dąbiec 2017). These and other climate-related phenomena have a significant impact on conditions in timber markets and financial viability of forest enterprises. Although they may bring financial benefits to forest companies in short term (due to more intensified felling), in longer perspective, they bring significant financial burdens and will negatively affect the economic viability of forest companies (Gołos and Kaliszewski 2016).

At the same time, demand for forest ecosystem services and social functions of forests is increasing. One of the requirements for sustainable forest management is to preserve biodiversity and conserve nature. Nature protection brings many benefits which are manifested by maintaining or increasing the use and non-use value of forest ecosystems. Research on social benefits resulting from maintaining and strengthening forest ecosystem services has been developed for many years and has significantly contributed to a better recognition of the social value of the protective functions of forests, including those resulting from the maintenance of biodiversity (Acharya et al. 2019; D'Amato et al. 2016; Elsasser et al. 2009; ten Brink 2018). In many cases, however, protection goals affect the productive capabilities of forest companies, which has negative economic consequences for forest management. This is because in practice, the benefits of protecting biodiversity and delivering other ecosystem services are usually wide-ranging public goods, while most of the costs and economic burdens are borne by local communities and forest owners and managers (Green et al. 2018; Kniivilä et al. 2002).

In this paper, we review and analyse sources of revenues of selected state-owned forest enterprises. The analysis shows that while revenues from the sale of wood are the main source of income of forest enterprises, some of them are seeking to diversify their

sources of revenues. The Austrian Federal Forests can serve as an example of a good development strategy based on diversified sources of income. Compared to other companies, the share of revenues from the sale of wood is small and accounts for around 50% in recent years. In order to reduce the reliance on wood, the ÖBf takes up additional activities by investing in real estate, public services, hunting and renewable energy generation. Also, the NLF company, which is approximately 60% dependent on the sale of wood, undertakes other activities, including real estate management, hunting and recreational services.

Our study shows that both the State Forests National Forest Holding and the BSf are based on timber harvest and sale to a large extent. The shares of other revenues are rather small and amounted to 11.9% in the PGLLP and 11.0% in the BSf in 2018.

The forestry model developed in Poland, which is based on prevailing state-owned forest ownership and the strong state-owned forest holding, has proven its worth for many years, and revenues from the sale of wood support implementation of sustainable, multi-functional forest management by the State Forests Holding. The share of incomes from the sale of wood in the PGLLP increased over the period 1992–2018 from 74% to over 87% of the total revenues, and only in recent years, this growth has been halted. However, the changing environmental, social, economic and other conditions of forestry functioning should be taken into account: the growing demand for environmental and social functions of forests, increasing labour costs or restrictions related to the use of forests in large areas may significantly hinder maintaining the profitability of an enterprise in the coming decades.

The examples of forest enterprises in other countries (Germany – Bavaria and Lower Saxony, Austria) show that changing social and economic conditions affecting the forestry sector not only create a risk to the economic stability of forest management, but also give new opportunities and can spur development of new areas of activity. Development of recreational and tourist infrastructure, provision of special nature-related services, hunting and production of renewable energy constitute the areas ‘non-wood forest use’ in a broad sense, including both harvesting of non-wood forest products and provision of ecosystem services. New or extended markets for these – previously of-

ten non-market – goods and services do not, however, depend solely on the forest companies themselves because they hinge on political decisions and legal framework enabling expansion of activities. They also require changes in the social attitude to the nature of services provided by forestry.

The expansion of commercial activities of the State Forests Holding in Poland and diversifying the sources of its incomes – although probably distant in time – will be necessary for some time. Some studies show that in the nearest decades, the economic efficiency of forest management in the PGLLP may decrease, which will mainly depend on the social factors. Necessary conditions will be interlinked with political expectations towards the forests as an important element of climate policy and also towards timber from forests as a source of renewable energy (Gołos and Kaliszewski 2016).

CONCLUSIONS

The presented examples show that broadly understood non-wood forest use, including both acquisition of non-wood forest raw materials and the use of non-production forest functions, offers an opportunity to diversify sources of income in public forests. To sum up, the discussed examples suggest that the State Forests National Forest Holding in Poland has a great potential to diversify its sources of revenues in the future. As for now, the share of revenues from non-wood production and ancillary activities of the holding is rather small. Moreover, over the last two decades, they even decreased significantly, unlike in some other discussed European enterprises (Austria, Lower Saxony). In the light of the changing environmental, social, economic and other conditions of forestry functioning, as well as new EU policies (climate and energy, biodiversity conservation, rural development), and under pressure of social demand for forests ecosystem services, increasing labour costs or restrictions related to the use of forests in large areas, some changes in this area seem to be inevitable. Thus, in the coming years, the ways for expanding and diversifying commercial activities of the State Forests today should become a subject of discussion among foresters, decision makers and politicians.

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