


ORIGINAL PAPER

Optimising the decision-making process in the management of forest building infrastructure

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ABSTRACT


The traditional organisational structure of Polish forest administration is based on the division of forest districts into forest units. The individual forest districts are administered by foresters who perform their office duties in so-called forester's offices. These offices are most often based in residential buildings known as forester's lodges (FL). One of the costs affecting the financial results of forest districts are expenditures on staff housing in which the offices are located. This paper proposes an original solution to support the decision-making process in property management. Based on a case study, it presents the process of qualifying foresters' lodges that can be replaced by double offices as an alternative to the current forestry solutions. It has been concluded that the net book value (NV) should be the basis for decisions on the modernisation (improvement) or sale of a fixed asset (forester's lodge building). It has been demonstrated by example that a comparative analysis of the aggregate NV of paired FLs with the value of the expenditures associated with the construction of modular offices is a useful tool to support the decision-making process regarding property management. Such analysis can effectively identify FLs that should be reviewed for potential disposal.

KEY WORDS

estate management, fixed assets in forestry, forester's lodge, housing policy

Introduction

Forest managers are required to manage forests rationally, based on economic principles of cost optimisation. In developing forest management strategies, it is important to take into account the long-term effects and changes of forest ecosystems (Duncker *et al.*, 2012; Talarczyk, 2014; Fridrich *et al.*, 2021; Winkel *et al.*, 2022), as well as aspects related to other assets, investments and forest infrastructure. Past management was also taken into account in forest planning and economic analyses (Adamowicz *et al.*, 2016; Wysocka-Fijorek, 2016). This analysis includes costs and income generated from timber, forest management, employment and infrastructure manage-

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ment (Wysocka-Fijorek, 2018). This assessment aims to obtain information to support future decision-making.

The management of forest assets generates high costs and accounting helps to make effective decisions (Postolache, 2010). One of the costs incurred is the cost of maintaining foresters' lodges (FLs). So far, studies in management accounting that would support decision-making in forest estate management are scarce. What is more, the diversity of geographic and natural conditions in forests (Kocel *et al.*, 2017, 2018) generates additional difficulties in this respect.

Improving the financial condition of forest districts requires cost optimisation, including the reduction of redundant infrastructure (Kocel, 2000; Szramka and Ziemblicki, 2002). An inventory carried out in 1985 in the State Forests National Forest Holding showed 74.33 thousand forest buildings (Trzciński, 2006) of which more than 43% were built between 1920 and 1939 (Misiuk, 2012a). This made it necessary to make increasing financial expenditures to keep this infrastructure in a sound condition. Therefore, at the end of the twentieth century, an increase in facilities for sale (Trzciński, 2006) or for demolition was observed (Misiuk, 2012b; Trzciński and Kaczmarczyk, 2010a,b). In 1997-2008, the State Forests sold a total of 34,722 residential units, of which 34,027 units were sold in accordance with the provisions of Article 40a of the Forest Act, while 695 units were transferred to municipalities (Trzciński and Kaczmarczyk, 2010b). A similar scenario was implemented in many countries, including the USA. The cost and rationale for providing housing to the USDA Forest Service were analysed there (USDA, 2023).

The recent decade has seen an increased interest in new technologies in construction, especially modular construction systems that are time-saving and environmentally efficient. Modular buildings are prefabricated and assembled on site, which reduces construction time and costs (Smith, 2010; Quale *et al.*, 2012; Kamali and Hewage, 2016; Dind and Rey, 2018; Hořínková, 2021).

The management of real estate is associated with a need to make important investment decisions, but it is different from the decision-making involved in other classes of assets contained in their asset portfolios. The high value and heterogeneity of individual assets make the real estate market an extremely challenging environment (Hutcheson and Newell, 2018). It therefore requires analytical instruments to support decision-making in this area. This problem was highlighted by, among others, Ekemode and Olaleye (2020) who analysed real estate investment decision-making practices and Dobrovolskienė *et al.* 2019, who developed a composite sustainability index for real estate projects. Considering the above, this article presents the authors' proposals for the use of accounting data in the decision-making process aiming at qualifying FLs for renovation or sale.

Materials and methods

A case study analysis was carried out in order to identify a method to identify opportunities for optimising the maintenance costs of forester's lodges (FLs). A forest district located in the Wielkopolskie Voivodeship was randomly selected for the analyses. The study was carried out for 11 forest units.

The data were obtained from the financial statements of the analysed forest district. The analyses used information on the costs incurred for the maintenance of forester's lodges (FLC) and reports on the volume of capital expenditures increasing the value of fixed assets (VFA). In accordance with Ordinance No. 53 of the General Directorate of the State Forests (Zarządzenie, 2018), it was assumed that for new investments it is advisable that forest offices be combined, at least in pairs. Therefore, data from investor cost estimates for the construction of double offices with the modular system (CE) were used for the analyses. The data used were from the last three years, *i.e.*: 2020-2022.

In the research process, source databases were compiled. The FLC database was compiled based on the accounting information recorded in account 501 – Forest Service costs. In the research process, the costs of depreciation of fixed assets, property tax, all types of building inspections, costs of chimney sweeping services, property insurance and costs of repairs were used. This information was gathered from the financial reports recorded in account 115 (Zarządzenie, 2020a). The VFA database was compiled based on the analysis of documents reporting increases in the value of fixed assets (OT accounting document). The net book value (NV) was determined based on SILP (State Forest Information System) database reports (report: Value of Fixed Assets).

It was assumed in the present analysis that in the potential sale of FL, the provision of Art. 40a. Sec. 4 of the Forest Act (Ustawa, 1991) will be applied specifying that the sale price of the premises is subject to a total reduction of up to 95%. This provision is commonly used in the disposal of forest properties.

The research sought to answer the following question: Can the application of management accounting support the decision-making process in the management of forest building infrastructure? In order to answer this question, an attempt was made to develop a theoretical basis for inference aimed at supporting the process of property management. At this stage of the research, a deductive reasoning method was applied. The logical procedure obtained through deduction was confirmed with the inductive reasoning method through a case study.

Research results

In order to identify the costs and optimise the expenditures of building a forester's office with a modular system in the context of maintaining forest service residential units, analyses were carried out on such elements as the costs incurred in maintaining the forester's lodges in question, the value of the capital expenditures incurred increasing the value of the fixed assets in a particular forester's lodge, and the net book value representing the non-depreciated value of the fixed assets comprising the entire forester's lodge infrastructure.

In the analysed unit between 2020 and 2022, the following were identified: i) VFA – PLN 577,113, ii) FLC – PLN 767,237, iii) NV – PLN 3,836,654 (Table 1).

Table 1.

Summary of capital expenditures and maintenance costs [PLN] of forest service residential units from 2020 to 2022 and the net book value of forest lodges at the end of 2022, by forest district

Forester's lodge (FL)	Capital expenditures increasing the value of fixed assets (VFA)	Costs incurred for the maintenance of foresters' lodges (FLC)	Total FLC incurred and VFA capital expenditures (C+V)	Net book value of foresters' lodges (NV)
I	0	25 056.51	25 056.51	46 111.88
II	0	24 267.75	24 267.75	109 607.74
III	0	42 447.74	42 447.74	144 968.02
IV	0	57 096.68	57 096.68	478 951.56
V	103 462.63	297 096.80	400 559.43	283 360.29
VI	0	54 016.72	54 016.72	155 320.20
VII	67 433.96	55 914.23	123 348.19	398 886.32
VIII	323 024.79	53 244.92	376 269.71	689 816.43
IX	0	64 153.22	64 153.22	364 698.66
X	67 285.55	41 123.92	108 409.47	449 601.74
XI	15 906.33	52 818.73	68 725.06	714 331.20
Total	577 113.26	767 237.22	1 344 350.48	3 835 654.04

Capital expenditures increasing the value of fixed assets were realised in 5 FL (FL – V, VII, VIII, X and XI) for a total of PLN 577,113,000. The value of FLC ranged from PLN 25,000 to 64,000, with the exception of FL V, where FLC amounted to more than PLN 297,000 (Table 1). The large discrepancy in relation to other FLCs was due to renovation work conducted in the residential building which also houses a forester's office. Based on a detailed analysis of the structure of FLC, it was revealed that renovations had the most significant impact on this group of costs.

It was observed that the analysed FLs had different NV (Table 1) mainly due to investments and upgrades increasing their net book value. A detailed analysis of the collected information revealed that for FLs whose NV was lower than PLN 160,000, no such activities were carried out. Considering the above, an assumption was made, as verified in the subsequent part of this paper, that within the framework of optimisation of real estate management, it is these FLs that should be allocated for sale.

When analysing the parameters used for verification, attention was drawn to FL V, where the NV is PLN 283,000 and the FLC between 2020 and 2022 was PLN 103,000. These amounts were associated with the replacement of the heating boiler together with the upgrade of the heating system and the paving of the area around the residential and utility buildings. Therefore, maintenance costs for this FL in the period under review amounted to PLN 297,000 and were largely incurred for the refurbishment of the residential building including the forester's office. The total value of financial resources expended on the maintenance and renovation of FL V amounted to PLN 401,000. If these investments had not been made, the NV of this FL would have been around PLN 180,000. With such an NV, the allocation of the lodge for sale would generate costs of around PLN 160,000, assuming that the lodge is sold to an employee entitled to the maximum discount, *i.e.* at 95%. In such circumstances, the forest district would incur costs lower than FLC by approximately PLN 137,000 and would not incur capital expenditures of PLN 103,000.

It should be borne in mind that in place of the real estate being disposed of, there is a need to build new, autonomous offices for foresters to carry out their statutory tasks. The collected source data revealed that the cost of building a double office amounted to PLN 465,000.

The presented case study shows that as a result of pairing neighbouring FLs, *i.e.* FL I and II, their total NV was PLN 156,000 and in the case of FL V and VI, the total NV was PLN 439,000. The conclusion is that in both cases, the NV is lower than the CE. This means that the costs, in the form of other operating costs, associated with the possible sale of these FLs would be lower than the expenditures for the construction of a new double forester's office. Therefore, in this case, it should be decided to build a double forestry office and the indicated FLs should be submitted for sale. In the example presented here, the potential sale would generate costs that are lower than the expenditure required for the construction of a double forester's office. On the other hand, in the absence of a decision to sell and the construction of a double office, one has to consider the necessity of incurring much higher capital expenditures for the upgrade of the FLs or the costs of maintaining forest service residential units. This can be inferred from the low NV.

Another element supporting the decision-making process in property management is the relationship of the sum C+V with CE. The analysis of these values will make it possible to indicate the threshold for qualifying individual FLs for sale or leaving them in the stock. It should be assumed that if the value of the projected C+V is close to CE, then FLs should be preliminarily selected for sale. Ultimately, the decision to qualify them for sale should be based on an analysis of the undepreciated value of an FL. This is because this value represents the cost of sale

which should be taken into account in the proposed decision-making process. As a result, it should be recognized that if the value of C+V plus the cost of sale of an undepreciated fixed asset is lower than CE minus revenues from sales, then an FL should be qualified for sale. It should be remembered, however, that there is one important condition. It is absolutely necessary to compare the CE with the cost of sales before applying the above procedure. If the CE is lower than the cost of sale, the FL in question should not be held for sale. Otherwise, it should be sold after meeting the conditions described above.

In the case analyzed, the C+V for forest districts V and VI (PLN 455,000) and VIII and IX (PLN 440,000) were found to be close to the CE (PLN 465,000). Based on this, these FLs were qualified for further procedure. Subsequently, the cost of sale (undepreciated value of FLs) was determined for these FLs. It was found that for FLs V and VI, this cost totalled PLN 439,000 and for FLs VIII and IX – PLN 814,000. In the case of FLs VIII and IX, the total is already higher than the expenditure on the construction of a new forester's office. In the case of the first pair, the CEs were higher (PLN 465,000) than the costs of sale (PLN 439,000), therefore these FLs should be sold. In the second case, the CEs were lower than the costs of sale, therefore FLs VIII and IX should not be sold.

Discussion

The social, economic and natural specificities of the region, and thus the level of difficulty of forest land administration, but also the staffing needs and age structure of the State Forests National Forest Holding staff, influence the organisation's property management policy. In most forest districts, key buildings for forest management have been identified and designated.

Trzciński and Kaczmarczyk (2010a) note that further sale of residential units in State Forests is not justified due to the need to leave a housing reserve amounting to a few per cent. In disagreeing with the above opinion, attention should first be paid to the level of costs incurred for the maintenance and repair of individual residential buildings. On the other hand, this opinion may be correct with regard to facilities administered by forest districts in areas with low population density, but also with regard to properties located in the vicinity of towns and in locations where dynamic increases in property prices are noted. For example, in the Austrian organisation managing state forests (ÖBf), property management is considered a strategic business pillar. This pillar continues to thrive in rental and leasing (generating about 17% of the profit) (Stampfer, 2011). Studniarski (1928) notes that the forest assets to be valued comprise not only land and forest stands but also administrative buildings and infrastructure necessary for the forest production process. The author believes that the absence or excess of certain elements may raise doubts as to whether and by how much the calculation of the income value of a forest should be reduced or supplemented for this reason. As at 1 January 2015, there were just over 10,000 residential units in the State Forests stock, of which 62% had in 2015 the status of essential residential units, not planned for sale (Zarządzenie, 2015, 2020a). The costs of maintaining FLs, as well as the VFA increasing the NV, constituted the basis for contemplating the possibility of using the alternative of building forester's offices with modular systems. At present (2022), the book value of the assets and, more specifically, of the tangible fixed assets at the State Forests National Forest Holding – buildings, premises, rights to premises and civil engineering structures – is more than PLN 6,777 million (Sprawozdanie, 2022). Statutory depreciation of buildings and residential units accounts for 1.5% of the value on an annual basis. This makes an average residential unit depreciate over 66 years (unless there are special circumstances). This should be taken into account when planning the disposal of residential units and planning the construction of new settle-

ments to replace those that have become naturally worn out. In the case of a double forester's office built with a modular system, depreciation per year is 2.5% of the value, which means that the fixed asset will have been depreciated after a period of 40 years. However, by design, the durability of such an office is a minimum of 50 years. During this time, the only cost of maintaining the proper technical condition of the office will be the cost of maintenance of its wooden elements.

In the period analyzed, the average VFA increasing the value of fixed assets per forester's lodge was approximately PLN 57,500/year. Carrying out improvements (redevelopment of the premises) increases the value of the premises and thus extends depreciation. Redevelopment is an element that allows the premises envisaged as an inviolable resource of essential residential units to be maintained in good technical condition (Zarządzenie, 2020b). From the analyses carried out, it has been proven that decisions to relocate offices from foresters' lodges to modular buildings can be a cost-effective measure. Taking into account the expenses required for the construction of a double office together with the entire infrastructure, such as fencing and hardening of the area with laying paving stones, the value of the investment amounts to approximately PLN 598,000. This amount changes the threshold for cost optimisation and is lower than the necessary capital expenditure or the cost of renovation of two FLs, which absolutely must be planned for and consistently incurred over time. From the analyses, it has been demonstrated that it is worth considering the construction of a double office in the case of forest units II and IV, where the net book value is around PLN 623,000, or postponing the investment plans until the undepreciated value is below the value of a double office with infrastructure. The use of modular construction systems in forestry combines cost efficiency with the protection of natural resources. In-depth and multifaceted case study research is needed to assess the suitability of modular buildings in the context of their potential use as forester's offices. Sendanayake *et al.* (2019) and Subramanya *et al.* (2020) recommend reticence about opinions on the positive impact of modularisation on project costs. There is no doubt that the technology increases the flexibility of projects, and allows modules to be disassembled and relocated, as well as reused, which promotes the optimisation of capital expenditures. As forest management needs and requirements evolve, modular buildings can be easily expanded, reconfigured or relocated to accommodate changing requirements. Adaptability increases the long-term viability and functionality of space, including office space. Many authors highlight the use of wood raw material for module construction (Nicał and Sikora, 2022; Stępień *et al.*, 2022). Delgado *et al.* 2023 emphasise that wooden modular construction systems offer economic and environmental benefits because wood is a natural and locally available raw material. Modular construction allows greater precision and quality control during the manufacturing process and consequently results in higher construction standards and lower risk of errors. Despite the prevalence of benefits (Subramanya *et al.*, 2020), some limitations associated with modular construction must be taken into account. They include, among others, transport logistics, site preparation and integration of modules into a coherent structure. Ensuring that modules are compatible with the specific needs of investors requires careful planning and coordination of the manufacturing and assembly process (Enshassi *et al.*, 2019). The adaptation barrier in terms of aesthetics and architecture, which influences the decision-making processes, should also not be overlooked (Hořínková, 2021; Domljan and Janković, 2022).

The current housing policy of the State Forests National Forest Holding and management of real estate and forest buildings needs to be validated. Wysocka-Fijorek (2018) emphasises that when discussing the state of infrastructure and investment needs of forest districts, attention

should be paid in particular to the needs and possibilities in terms of repair and construction of forest settlements, replacement of transport means and improvement of the road network in a forest district. The management of target and redundant infrastructure should also be described (Wysocka-Fijorek, 2018). Such a qualification should be made on objective grounds. The authors hope that the logical process of classifying FLs into the appropriate group and identifying key decision-making elements, as implemented and presented in this publication, will facilitate this task.

The value of fixed assets was considered in the context of book value. The main difference between book value and market value is that the book value of an asset corresponds to its balance sheet value, *i.e.* historical cost less accumulated depreciation. In contrast, the market value of an asset corresponds to its market price (*e.g.* quoted on the market). Therefore, decisions on the disposal of forest estates should be considered from multiple angles. Furthermore, the disposal of real estate, especially in forest areas (deep in the forest), should be limited, due to the risk of potential conflicts between new owners using the infrastructure (*e.g.* roads) of the State Forests National Forest Holding and the forest administration. Each structure (forest building) should be individually assessed in terms of its suitability and potential for increasing market value, as well as the costs incurred for its maintenance and potential renovation expenditures. Rational management of forest estates should also include an assessment of the potential for renting out facilities to generate profit from ancillary or social and subsistence activities in the State Forests National Forest Holding.

Conclusions

The analyses carried out revealed that the net book value (NV), among other things, should be the basis for decisions on the upgrading (improvement) or sale of a fixed asset (forester's lodge building). The book value determines the level of costs that the forest district would incur in case of selling a forester's lodge. It should always be confronted with the costs of possible renovation or capital expenditures for upgrading the facility.

A comparative analysis of NV of paired FLs with CE is a useful tool to support the decision-making process regarding property management. Such analysis can effectively identify FLs that should be reviewed for potential disposal. Based on the research conducted, the following formula was proposed to support the decision-making process: if $NV < CE$ then the building should be put up for sale (in a situation when NV is lower than CE the building should be put up for sale).

The value of $C+V$ also plays an important role in the decision-making process. The procedure in this regard should be carried out in two stages. In the first stage, a comparative analysis of $C+V$ plus cost of sales with CE minus revenues from sales should be made. If the condition is met that: $C+V + \text{cost of sale of FL} < CE - \text{revenues from sales}$, the property should be preliminarily qualified for sale. The final decision in this regard should be based on the analysis of CE and cost of sale. In the second stage, the qualification of FL for sale should be based on the formula: $CE > \text{cost of sale}$ (Fig. 1).

The most important aspect of the construction of a double office with a modular system is its economic viability, supporting the need to make decisions on the sale or modernisation (improvement) of buildings more flexible, while obviously disregarding the cultural and historical (traditional) value contributed by forester's lodge buildings.

The authors believe that the analysis presented here can provide an instrument to support decision-making in the area of housing policy for forest holdings.

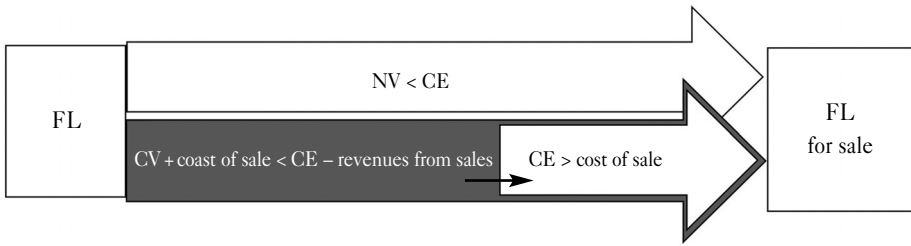


Fig. 1.

Decision-making scheme in the management of fixed assets (forester's lodges)

Authors' contributions

Conceptualization – Ł.F., K.A.; methodology – Ł.F., K.A.; validation – Ł.F., R.G., A.K., K.A.; investigation – Ł.F., R.G., A.K., K.A.; data curation – Ł.F., K.A.; writing-original draft preparation – Ł.F., A.K., K.A.; supervision – Ł.F., A.K., K.A.; funding acquisition – K.A., R.G.

Conflicts of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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STRESZCZENIE

Optymalizacja procesu decyzyjnego w zakresie zarządzania leśną infrastrukturą budowlaną

Zarządzanie nieruchomościami związane jest z koniecznością podejmowania długoterminowych decyzji inwestycyjnych i różni się od innych kategorii majątku w portfelu aktywów. W celu podnoszenia efektywności ekonomicznej gospodarki leśnej konieczne jest wypracowanie narzędzi w systemie wsparcia procesów decyzyjnych. Zarządzanie aktywami jest istotne ze względu na koszty. Jednym z ponoszonych przez Lasy Państwowe (LP) kosztów są koszty utrzymania nieruchomości, m.in. leśniczówek. W opracowaniu przedstawiono autorskie propozycje wykorzystania danych rachunkowych w procesie decyzyjnym zmierzającym do kwalifikacji leśniczówek (FL) do remontów lub sprzedaży. Podjęto próbę opracowania teoretycznych podstaw wniosku o zmierzającego do wspierania procesu zarządzania nieruchomościami.

W celu identyfikacji metody ukazania możliwości optymalizacji kosztów utrzymania FL wykonano analizy opierające się o studium przypadku. Do analiz wybrano losowo nadleśnictwo (11 leśnictw) zlokalizowane w województwie wielkopolskim. Źródłem danych były sprawozdania finansowe. Wykorzystano informacje dotyczące kosztów utrzymania leśniczówek (FLC), nakładów inwestycyjnych zwiększających wartość środków trwałych (VFA) oraz kosztorysy inwestorskie budowy podwójnej kancelarii systemem modułowym (CE). Dane pochodziły z lat 2020-2022.

Nakłady inwestycyjne zwiększające wartość środków trwałych zostały zrealizowane w 5 FL (V, VII, VIII, X i XI) na łączną kwotę 577,113 tys. zł. Wartość FLC kształtowała się w przedziale od 25 do 64 tys. zł, wyjątek stanowiło FL V, gdzie FLC to kwota ponad 297 tys. zł (tab. 1). Stwierdzono, że analizowane FL wykazywały zróżnicowaną wartość księgową netto (NV), z powodu dokonywanych inwestycji zwiększających tę wartość. Łączne NV sąsiednich FL, tj. FL I i II, wynosiło 156 tys. zł, a w przypadku FL V i VI łączna wartość NV była równa 439 tys. zł. W obu przypadkach NV jest niższe od CE, czyli koszty związane z ewentualną sprzedażą tych FL byłyby niższe od nakładów na budowę nowej podwójnej kancelarii leśniczego. Kolejnym argumentem wspierającym proces decyzyjny w zarządzaniu nieruchomościami jest relacja sumarycznej wielkości C+V z CE (tab. 1). W przypadku gdy wartość prognozowanych C+V będzie zbliżona do CE, to FL powinny zostać wstępnie wytypowane do sprzedaży. Finalnie decyzję o ich kwalifikacji do sprzedaży należy oprzeć o analizę wartości niezamortyzowanej FL. W analizowanym przypadku stwierdzono, że C+V dla leśnictw V i VI (455 tys. zł) oraz VIII i IX (440 tys. zł) są zbliżone do CE (465 tys. zł). Na tej podstawie zakwalifikowano te FL do dalszego etapu procedowania. Stwierdzono, że dla FL V i VI łącznie koszt wynosił 439 tys. zł, a dla FL VIII i IX 814 tys. zł. W przypadku FL VIII i IX sumaryczna wielkość jest już wyższa niż nakłady na budowę nowej kancelarii. W przypadku pierwszej pary CE były wyższe (465 tys. zł) niż koszty sprzedaży (439 tys. zł), dlatego te FL powinny zostać sprzedane. W drugim przypadku CE były niższe niż koszty sprzedaży, dlatego FL VIII i IX nie powinny zostać sprzedane. Na podstawie analiz wykazano, że warto rozważyć budowę podwójnej kancelarii w przypadku leśnictw II i IV lub przesunąć plany inwestycyjne do momentu uzyskania wartości niezamortyzowanej poniżej wartości podwójnej kancelarii wraz z infrastrukturą.

Decyzje w zakresie zbywania nieruchomości leśnych powinny być rozpatrywane wieloaspektowo. Zbywanie nieruchomości w szczególności na terenach leśnych powinno być ograniczone ze względu na ryzyko konfliktów pomiędzy nowymi właścicielami a administracją leśną. Każdy obiekt (budynek) powinien być indywidualnie oceniany pod kątem jego przydatności i potencjału wzrostu wartości rynkowej. Racjonalne zarządzanie nieruchomościami leśnymi powinno obejmować także ocenę potencjału wynajmu obiektów, celem generowania zysku z działalności dodatkowej lub socjalno-bytowej w LP.

Wykazano, że NV powinna stanowić podstawę podejmowanych decyzji w zakresie modernizacji lub sprzedaży środka trwałego. Zaproponowano następującą formułę wspierającą proces decyzyjny: jeżeli $NV < CE$, to budynek należy przeznaczyć do sprzedaży. W procesie decyzyjnym istotną rolę odgrywa również wartość C+V. Procedowanie w tym zakresie powinno odbywać się w dwóch etapach. W pierwszym należy dokonać analizy porównawczej C+V powiększonych o koszt sprzedaży z CE pomniejszone o przychody ze sprzedaży. Jeżeli spełniony jest warunek, że: $C+V + \text{koszt sprzedaży FL} < CE - \text{przychody ze sprzedaży}$, należy nieruchomość wstępnie zakwalifikować do sprzedaży. Finalną decyzję należy podjąć na podstawie analizy CE oraz kosztu sprzedaży. W drugim etapie kwalifikację FL do sprzedaży należy dokonać na podstawie formuły: $CE > \text{koszt sprzedaży}$.