

Review paper

## Future possibilities for long-term business cooperation between private forest owners and forest service providers in Slovenia

Zala Uhan<sup>1\*</sup>, Nike Krajnc<sup>2</sup> and Špela Pezdevšek Malovrh<sup>1</sup>

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**Abstract.** Private forest ownership, with small and fragmented forest properties prevailing in Europe, is affected by demographic, economic and social changes as well as by forest-related policy goals. This is reflected in the lack of knowledge about forest management, insufficient forest management and underutilization of forest resources. Considering that, business cooperation between private forest owners and with forest service providers or managers is recognized as one of the key instruments to increase the efficiency of private forest management. The aim of this study is to investigate whether there is a potential for further development of forest lease as form of long-term business cooperation. In this research, interviews (n=8) were conducted with tenants who have signed long-term forest lease contracts with private forest owners in Slovenia. The results show that there are limited possibilities for further development of long-term business cooperation between private forest owners and forest service providers/managers (e.g. forest lease). The results indicate that there are many benefits of long-term business cooperation for both sides, but private forest owners' interest is questionable. If we want long-term business cooperation (forest lease) to succeed, forest lease should be recognized in legislation, education about business cooperation (forest lease) should be given to public forest service employees, so they could promote forest lease and provide information to private forest owners. In addition, a connection between potential business partners should be established and examples of good practice should be promoted to gain trust between business partners, which could increase private forest owners' interest and consequently improve private forest management and utilization of forest resources from private forests.

**Key words:** small-scaled private forest owners, business contract, forest lease agreement, snowball sampling.

**Authors' addresses:** <sup>1</sup>University of Ljubljana, Biotechnical Faculty, Department of Forestry and Renewable Forest Resources, Večna pot 83, 1000 Ljubljana, Slovenia; <sup>2</sup>Slovenian Forestry Institute, Večna pot 2, 1000 Ljubljana, Slovenia; \*e-mail: [zala.uhan@bf.uni-lj.si](mailto:zala.uhan@bf.uni-lj.si)

### Introduction

Private forest ownership, with small and fragmented forest properties (56% of forests are privately owned and 88% of forest

properties are smaller than 10 ha), prevails in Europe (FAO/UNECE, 2020). Furthermore, there is increasing diversity among a large number of private forest owners (hereafter: PFOs) who have different objec-

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tives when it comes to forest management. Particularly, PFOs' forest management objectives are influenced by demographic, economic and social changes which is reflected in a growing share of non-traditional, urban, passive or absentee PFOs who have different objectives when it comes to forest management (Weiss *et al.*, 2019). These PFOs lack sufficient knowledge and experiences in forest management which is reflected in insufficient forest management and underutilization of forest resources (Feliciano *et al.*, 2017). Over the last few years, the relationship between forest ownership and forest management has been the central topic in forest policy research. In particular, many studies focus on the influence of ownership characteristics on forest management activities in relation to the utilization of forests and wood mobilization (e.g. Hogl *et al.*, 2005; Feliciano *et al.*, 2017; Ficko *et al.*, 2019; Weiss *et al.*, 2019; Juutinen *et al.*, 2020).

In Slovenia, forests cover almost 60% of its territory (Slovenian Forest Service, 2023) and are managed in a sustainable, close-to-nature and multifunctional way. Private forest ownership prevails (77% of forests are privately owned) (Slovenian Forest Service, 2023). Larger and undivided forest properties are state-owned, while private forest ownership is mostly small-scale and fragmented. For the vast majority of these properties, forests are not of economic interest (Pezdevšek Malovrh *et al.*, 2015; Kumer, 2017; Ficko *et al.*, 2019). Consequently, private forests are managed insufficiently as harvesting in privately owned forests lags the allowable felling, reaching 64% of allowable felling and 52% of the current increment in 2022 (Slovenian Forest Service, 2023).

For many years, policy makers, not only in Slovenia, but also across Europe have responded to the problem of underutilization of forest resources by different policy instruments. Among them cooperation between PFOs, joint marketing of timber and coordination of joint forest management

was recognized as a key policy instrument to support sustainable forest management, mobilize resources and help achieve the implementation of different policy objectives (Sarvašová *et al.*, 2015; Pöllumäe *et al.*, 2014; FAO/UNECE, 2020). Across Europe and in Slovenia different forms of interest (e.g. forest owners associations, machinery rings) and business cooperation (e.g. cooperatives, PFO companies, producer groups under the Common Agricultural Policy) have been established (Rauch, 2007; Pezdevšek Malovrh & Laktić, 2017; Černač & Pezdevšek Malovrh, 2020; Nilsson *et al.*, 2020; Iveta & Pezdevšek Malovrh, 2021; Sonnhoff *et al.*, 2021; Pezdevšek Malovrh *et al.*, 2022). However, due to various reasons (e.g. lack of trust, high transaction costs, small-scale PFOs' limited economic interest, lack of knowledge about PFO organizations) PFOs all across Europe are generally not inclined to generate interest or engage in business cooperation (Glück *et al.*, 2010; Weiss *et al.*, 2012; FAO/UNECE, 2020).

Previous research extensively focuses on PFOs' interest or business cooperation in different organizational forms e.g. PFO associations, cooperatives and machinery rings (e.g. Pezdevšek Malovrh, 2010; Sarvašová *et al.*, 2015; Pezdevšek Malovrh & Laktić, 2017; Aurenhammer *et al.*, 2017; Pöllumäe *et al.*, 2014; Hrib *et al.*, 2018; Sonnhoff *et al.*, 2021; Pezdevšek Malovrh *et al.*, 2022) also with the aim of understanding the reasons for the establishment of different organizational forms (Schraml, 2005; Sarvašová *et al.*, 2015), the motives of PFOs and their benefits for joining (Pezdevšek Malovrh *et al.*, 2011; Pöllumäe *et al.*, 2014; Hrib *et al.*, 2018), why these organizational forms were developed and how they are operating, especially in terms of joint marketing of timber and coordination of joint forest management activities (e.g. Lönnstedt, 2014; Sarvašová *et al.*, 2015; Kronholm, 2016; Aurenhammer *et al.*, 2017; Pezdevšek Malovrh & Laktić, 2017; Černač & Pezdevšek Malovrh, 2020; Plevnik &

Pezdevšek Malovrh, 2021), the effects of cooperation on forest management (See-land *et al.*, 2011; Hansmann *et al.*, 2016), and the role of stakeholders (Šalka *et al.*, 2016; Aurenhammer *et al.*, 2017).

After decades of development of PFO cooperation in different EU countries, a wide variety of services are available for PFOs in the form of both full-service packages and services supporting owners' activities. Therefore, previous research related to PFO business cooperation shows that approximately 20% of PFOs had some kind of agreements related to timber trade or timber harvesting and skidding services (Hyvönen, 2010; Eriksson *et al.*, 2017; Kronholm *et al.*, 2021; Johansson *et al.*, 2023), which shows that PFOs prefer short-term business cooperation with forest service providers. The owners who had such agreements owned larger forest properties (twice as large) than the owners without an agreement. In addition, these owners engaged in timber trade more often (Hyvönen, 2010). Moreover, some research showed that due to the ongoing structural change in forest ownership, the decreasing expertise among PFOs is expected to result in a greater need for more comprehensive and sophisticated services (Hujala *et al.*, 2013; Mattila & Roos, 2014), resulting in long-term business cooperation with forest service providers or forest managers. Among this long-term business cooperation, a forest lease, as a new kind of commercial forest property management service offered by forest service providers or forest managers has shown to have a potential as PFOs are willing to participate in long-term contract-based management (Iveta & Pezdevšek Malovrh, 2021). Previous research shows that in e.g. Russia, Canada and the USA forest leases are quite widespread, mainly as concessions, which are a form of forest lease used for managing public forests (Kurttila *et al.*, 2016; Laakkonen *et al.*, 2019; Chernyakevich & Vdovin, 2020; FAO/UNECE, 2020). In Europe, forest lease in a form of

concession is not so widespread, but exists or existed in some countries, like Germany and Slovenia (Winkler, 2000; Viitala & Leppänen, 2015). In Slovenia, state-owned forests were under concession for 20 years (ended in 2016). Nowadays, studies related to forest lease see a new potential in this long-term cooperation, therefore e.g. forest leases in Finland were investigated as a solution to reduce the cost of voluntary protection (Juutinen *et al.*, 2008), where also PFOs' preferences for contract-based management were evaluated (Juutinen *et al.*, 2021). In addition, Hänninen *et al.* (2017) and Kurttila *et al.* (2016) suggest that forest lease should also serve the evolving needs of urban/absentee/passive PFOs through business cooperation between forest service companies, financial sector companies, forest owners associations and scientists, and cover full-service forest management (silviculture works, harvesting and skidding, (organizing) transport and timber sale). Previous studies, even if they did not focus on the benefits and challenges of forest leases, recognized some. The most recognized benefits are related to guaranteed income for both, PFOs and tenants, and new employment possibilities for tenants (Pezdevšek Malovrh *et al.*, 2021; Laakkonen *et al.*, 2019). Further, Pezdevšek Malovrh *et al.* (2021), emphasize that forest lease presents an opportunity for urban/absentee/passive PFOs to manage their forests and that professional workers ensure better forest service provision. On the other side, challenges in forest lease are also quite commonly recognized in previous studies. Most-mentioned are possible conflicts between tenants and PFOs, due to inadequately prepared lease contracts, lack of knowledge (about forest management or business cooperation) or lack of communication between tenants and PFOs (Laakkonen *et al.*, 2019; Hänninen *et al.*, 2017).

In contrast to previous studies, which examined forest lease potential from PFO perspectives, this study focuses on po-

tentials for further development of forest lease based on the opinion of forest service providers/managers who already have concluded a forest lease with PFOs. The study is based on a Slovenian case, but the lessons learnt in the Slovenian context will have European level relevance as similar private forest management and policy issues related to the utilization of wood from private forests are of great concern.

## Materials and Methods

In order to collect data a semi-structured interview with predefined topics was prepared within the project "Efficient management of private forests to support wood mobilization – CRP V4-2013" in line with the main project objective, which was an overview of the state of business cooperation and analysis of identified business models. The interview consisted of three parts and altogether 15 questions. The first part referred to the basic characteristics of the current forest lease practices in Slovenia (reasons for establishment, organizational structure of the business model and socio-demographic and economic characteristics of PFOs who lease their forest). The second part of the interview focused on the general opinion about forest leases and its benefits and challenges. The third part focused on the possibilities for future developments and suggestions.

As forest lease examples are rare and consequently difficult to identify in Slovenia, we chose a snowball sampling method. Snowball sampling is commonly used in social sciences when groups with specific behavior or characteristics are needed (Dragan & Isaic-Maniu, 2013; Parker *et al.*, 2019). In our research, two initial contacts were recognized by the research team and interviews were firstly conducted with them. In the next phase they recommended us new contacts who were approached and asked whether they are willing to participate in the research. The contacts who

were willing to participate in the research then recommended other contacts. At the end, altogether eight interviews were conducted. The interviews were carried out with tenants, who were representatives of a company or PFO.

All interviews were conducted via individual telephone calls in April and March 2023 and recorded with a digital voice recorder. The average duration of an interview was 42 minutes and 57 seconds. The interviews were transcribed by the interviewers (authors) and the text was subsequently coded. The codes evolved from very precise and descriptive to more analytical and abstract ones. A code book was developed based on the interview questions and frequently updated with new codes that emerged during the analysis to keep track of the coding process and ensure consistency (Appendix 1). The analysis of the results was done with the program MAXQDA. Citations have been translated from Slovenian to English by the authors with particular care being taken not to change the meaning of the statements. In order to preserve the anonymity of the respondents, all the citations are changed in male gender form and coded with generic codes in the form [ID XY].

## Results

### Current forest lease practices

In Slovenia, forest lease is not a very common form of business cooperation between PFOs and forest service providers, therefore only few cases (n=8) were identified. The results show that forest lease contracts are more frequently concluded with large-scale PFOs, who own a forest property larger than 10 ha (75%). The tenants are mostly business entities, established by the church (n=3) or privately owned companies (n=3). In two cases, PFOs had concluded a forest lease contract with other PFOs.

Forest lease in Slovenia developed after the restitution process when forests were

returned to PFOs. Many of these PFOs left the country in the past, so their descendants live abroad and cannot manage their forests due to the long distances to their forest property, as interviewee ID06 said: *"The PFOs were exiled, leaving with only personal items and some documents. They went to America. In 1994, their property was returned to them through a denationalization process. Now everything has been given back to them. They still live abroad and come to Slovenia two or three times a year and are very interested in what we do and how we do it. They pick up forestry knowledge very quickly. They are elderly ladies, and the forest property makes up a certain part of their income, quite a large part, because they are retired."* In addition, some forests were returned to the church which cannot manage its forests profitably, because the church in Slovenia has the status of a non-profit organization; interviewee ID02: *"It turned out that the church as such cannot manage the forests profitably at all, because it is a non-profit organization. The idea was to set up a company owned by the church. This company now manages the forests."* All this led to the need to set up companies to manage the forests of these PFOs. In one case, the forest lease contract, included in the study, is concluded between the tenant and some companies that bought forests as an investment; interviewee ID08: *"I lease my forests from different companies. I decided to do this because it is another business opportunity. These owners are not qualified to manage their forests, so they started to lease their forest and it's going well."* As stated before, some forest leases are concluded with small-scale PFOs. In our case studies, the interviewees stated that small-scale PFOs have not managed their forests because they do not have the knowledge, the profit from the forests is too low and not important to them, or they live in the city and have lost touch with the forest. In this one case, a tenant leases more properties and manages about 30 ha of forest; interviewee ID03: *"Most of them are PFOs who are not from the area and are at least 30–40 km, or even half a country*

*away. These PFOs are not very economically connected to the forest because they are mostly lawyers or doctors. They mainly don't think about forest management."* Another tenant manages only 4 ha of forest and has a forest lease contract concluded with one PFO; interviewee ID07: *"In the time of contract conclusion, the PFOs lived in the city and did not carry out forest management because they had no knowledge and lived far away from their forest. So, I approached them, and we concluded the contract that has now been going on for over 20 years."*

The interviews focused also on forestry work, such as silviculture works and harvesting. The tenants carry out most of the forestry work themselves, as they mainly have their own machinery and employ forestry professionals. Nevertheless, two of the tenants interviewed hire forestry professionals as they feel that hired labor provides better work performance and forest management is easier to implement in this way. Interviewee ID05 has never considered employing forestry professionals or buying forest machinery: *"We never considered owning machinery because forestry professionals with their own companies work efficiently and as much as they can."* Two tenants also hire forestry professionals but only when they have large-scale logging, and a shortage of labor. Interviewee ID07: *"I do the forest management by myself. I take care of the forest and monitor if there is a bark beetle attack. I own forest machinery, but if there is large-scale logging, I hire forestry professionals."*

We also asked about the involvement of PFOs in forest management decision-making. The results were very diverse in this case. Some of the PFOs contribute to forest management and make joint decisions with tenants, for example interviewee ID07: *"Last year there was need for large-scale logging due to rejuvenation. We had to harvest and sell about 140 m<sup>3</sup> of wood. I organized everything and was there when the official decision was issued by the public forest service. After that, together with the PFO, we selected the*

logging company and the timber purchaser”, but some PFOs are only interested in the income and do not want to participate in forest management decisions, interviewee ID08: “The companies from which we rent our forests do not have anyone who knows about forests, they do not even have a person with forestry education. However, they have someone who is in charge of the forest lease and who signs the bills and invoices.”

**Benefits and challenges of forest lease**

The subsequent interview focused on the benefits and challenges of forest lease as identified by tenants. As shown in Table 1, there are some benefits of forest lease for the tenants and the PFOs.

The main benefits for the tenants are new employment opportunities and long-term contracts which guarantee them an income; interviewee ID06: “Of course there are benefits for everyone, for example new employment opportunities. Also, the long-term contracts guarantee our income. Additionally, I would like to emphasize that we have a shared responsibility. We are responsible for costs that can be covered by the insurance company, while the PFOs are responsible for other costs. This is a benefit for both sides, I think.” As can be seen from the citation, shared responsibility is also one of the advantages of forest lease. Further, the benefits for the PFOs were even greater, as forest lease provides the PFOs with an income from the forests, provides the PFOs with emotional satisfac-

tion and allows direct communication and no middlemen which could provide financial benefits for PFOs; interviewee ID03: “There are some benefits for the PFOs, because they get some income, which is not much compared to what they earn in their normal day job, but still. I think forest management gives them emotional satisfaction because we take care of their forests and do silviculture and logging. I think it’s important for them that their forest is healthy and monitored so that the measures against the bark beetle are successful.” In addition to previous benefits, forest lease also enables forest management for absentee PFOs who live abroad or far away from their forest, and enables forest management in co-owned forests where more trade-offs tend to be in relation to forest management decision-making; interviewee ID06: “I mean, if the PFO is absent or lives abroad, there is no other option than to lease forests. You cannot manage your forests if you are not present”, and interviewee ID08: “... forest lease also makes it easier to reconcile different forest management objectives in co-owned forests...”

Despite the many benefits of forest lease, there are some challenges. The main challenges (Table 2) are related to possible conflicts between tenants and PFOs and lack of trust in tenants because of previous bad experiences. Interviewee ID01 had such experiences: “There is an absolute lack of trust, everything else is less important. The forest management of the PFOs’ forests is very

Table 1. Benefits from forest lease.

Benefits for tenants	Benefits for PFOs
New employment opportunities	Income from forests
Long-term contracts and guaranteed income	Direct communication and no middlemen could provide financial benefits for PFO
Shared responsibility	Emotional satisfaction
	Enables forest management for absent PFOs (they live abroad or far away from their forest)
	Enables forest management in co-owned forests
	Shared responsibility

delicate, people are afraid that the tenants will exploit their forest and cause damage to the forest.” Interviewee ID03 also thought of possible conflicts among PFOs and tenants: “Well, there can be conflicts between the PFOs and the tenants, especially in difficult situations, for example when there is natural disturbance and salvage logging is required. But in my case, fortunately there were no conflicts.” In addition, interviewees repeatedly raised some challenges related to insufficient operational environment, when they try to establish contact with PFOs; interviewee ID03: “Well, it is almost impossible to contact PFOs because there are legal restrictions on public forest service employees. The only way to get in touch with PFOs is illegally or through acquaintances.” However, if the forest is owned by a company, some data is available; interviewee ID08: “Leasing from companies is much easier because ownership data is available. But there is also interest in leasing from small-scale PFOs. However, there are huge problems in contacting them. We do have some open databases with information about PFOs, but we cannot just call them. I think the public forest service would have to intervene.” Furthermore, according to the interviewees, the operational environment is also insufficient, as it is difficult to obtain information on business cooperation. It was also emphasized that everyone is responsible for obtaining information themselves, as there is no official institution that would provide forest managers with information about business cooperation.

Interviewee ID03: “Everyone is on their own. We have to find a sample agreement and then adapt it to our needs. I had some problems at the beginning of the business because I did not have the necessary knowledge. Others with already established business models didn’t want to share information and help because I am their competition.” Moreover, the challenges for tenants are also related to the high financial and human investment required to start a business or business cooperation, as tenants need to have basic capital and they need to buy forest machinery and employ people; interviewee ID06: “We also had big investments because we had to start a business, hire people and buy forestry machinery.”

**Opportunities for future development and tenants’ suggestions**

The last part of the interview focused on the opportunities for the future development of forest lease in Slovenia and suggestions on how to overcome the challenges and improve the current practice of forest lease to make it more common. The results show that these opportunities are good, as there are many PFOs that are not engaged in forest management; interviewee ID08: “There are opportunities for further business development, and we are actively working on it. We plan to expand our business to large-scale PFOs but also work with small-scale ones. Our strategy is to approach the PFOs and give them a presentation about their forests and what kind of profit they could make based on the information from open access. Usually, they

Table 2. Challenges in forest lease.

Challenges for tenants	Challenges for PFOs
Possible conflicts with PFOs	Possible conflicts with tenants
Lack of trust in tenants because of previous bad experience	Lack of trust in tenants because of previous bad experience
Insufficient operational environment – establishing contact with PFOs	
Insufficient operational environment – lack of information about business cooperation	
High financial and human investment required	

then decide to conclude the contract." However, besides the tenants' interest, there is a lack of interest among PFOs according to interviewee ID02: "The PFOs don't really have much interest in leasing their forest, but there is interest on the side of the forest service providers and tenants."

Despite the interest of tenants, there are still some challenges (Table 2) that need to be addressed and overcome. The interviewees highlighted the promotion of examples of good practices and business transparency the most. Transparency and examples of good practices increase trust, promote the importance of forest management, and improve utilization of wood from private forests. Interviewee ID01: "I think the question about opportunities for future development is very important. The first thing we need is a very capable person who would be able to create an example of good practice. I think forestry lacks that. After the example of good practice is established, only then do we need marketing and promotion. I think there should be some kind of a reward system to show us who is a good tenant and who isn't. We need transparency. But finally, the state should also promote forest management, including forest lease." As seen from the quotation of interviewee ID01, results also suggest changes in legislation, especially in that forest lease should be recognized as a form of business cooperation between forest service providers/forest managers and PFOs. Furthermore, the interviewees also stressed that education on business cooperation (forest lease) should be given to public forest service employees; interviewee ID08: "To promote forest leases, I think it would be good to set up some kind of a course for public forest service employees that could be run by the Chamber of Agriculture and Forestry. I think that is their responsibility. Then, if the legislation allows, public forest employees could extend business cooperation to PFOs and help establish contacts with forest managers." Public forest service employees were further recognized as an important actor who should then promote business cooperation (forest lease) among

PFOs; interviewee ID03: "Public forest service employees should be able to provide contacts to PFOs so that they can establish contact with tenants. They could have a list of all forest managers, forest service providers, timber sellers, etc., which they could then pass on to the PFOs. Of course, public forest service employees should not give preference to any particular forest manager or forest service provider so that the extension service remains impartial. Legislation should be changed, so that public forest service employees could have more freedom in providing an extension." However, as there are regulations, which prohibit employees of public forest service to give tenants' contacts to PFOs, the interviewees suggested that a connection between potential business partners could also be established via online platforms according to interviewee ID01: "I think that, if we would like to be as transparent as possible and enable PFOs to make their own decision about choosing a forest service provider or forest manager to lease their forest, some kind of an online platform would be a good option to establish contact. PFOs could then rate the quality of service so that everyone else would get information on who is trustworthy and who isn't."

## Discussion

Insufficient management of private forests is a long-standing problem in Slovenia, which has been addressed in several forest policy documents (e.g. the Resolution on National Forest Programme, 2007, the Forest Act, 2007 and Operational Programme of National Forest Programme 2022–2026, 2022). These policy documents recognize PFO cooperation as one of the possible solutions, however, these policy documents mainly focus on interest cooperation and not on the business cooperation of PFOs.

The results of this study and previous studies show that forest lease is not a very common form of business cooperation among PFOs in Slovenia (Pezdevšek Malo-

vrh *et al.*, 2021). Forest lease in Slovenia is most recognized among large-scale PFOs who are absentee PFOs and are not able to manage their forest by themselves. However, there were also a few examples of forest leases recognized among small-scale PFOs, but those examples were rare. The interviews show that the main reason PFOs decided to conclude a long-term forest lease is because they are urban/absentee/passive PFOs who do not have the knowledge or capacity to implement forest management activities. Laakkonen *et al.* (2019) also report the same establishment reasons of the forest lease while studying the value network of potential forest lease services in Finland. Furthermore, Laakkonen *et al.* (2019) and Hänninen *et al.* (2017) report that forest lease may serve as a new kind of commercial forest property management services to urban/absentee/passive PFOs who do not implement forest management by themselves, rarely sell timber, are highly educated and live far from their forest. Besides the previously stated benefits of forest lease for PFOs, the results of this study show more. One of the benefits recognized in this study are new employment opportunities in the forestry sector, which is also in line with the results of Pezdevšek Malovrh *et al.* (2021). Furthermore, the interviewees stated that long-term contracts guarantee income for tenants, which was also recognized as a benefit by Laakkonen *et al.* (2019) and Pezdevšek Malovrh *et al.* (2021). Moreover, Pezdevšek Malovrh *et al.* (2021) suggest that small-scale forest properties should be merged beforehand and then leased. Furthermore, Pezdevšek Malovrh *et al.* (2021) report on another benefit of forest lease – better forest service provision owing to professional forest workers, which was not recognized in our study.

According to our results and benefits of forest lease, this business model could become more common in Slovenia. Our interviewees stated that there are a lot of urban/absentee/passive PFOs who do not manage their forest which is in line with

the report on forests provided by Slovenian Forest Service (2023). However, the future possibilities for the development of forest lease are quite limited as there are some challenges that need to be overcome. Challenges recognized by this study are relating to possible conflicts among PFOs and tenants which are probably a consequence of the lack of knowledge about forest management and business cooperation or lack of communication between business partners. Similar problems were recognized in other forms of PFOs' business cooperation (e.g. Pezdevšek Malovrh & Uhan, 2022; Plevnik & Pezdevšek Malovrh, 2021; Iveta & Pezdevšek Malovrh, 2021). To address these problems, the previously mentioned studies suggested that education and training of PFOs to improve their knowledge about forest management and business cooperation is needed. Furthermore, a lack of trust in tenants was also emphasized by the interviewees, mainly because of previous bad experience, such as tenant-PFO disputes or frauds in timber sales. Additionally, the results of this study suggest that PFOs are afraid that their forest might be exploited and damaged. Consistently, Laakkonen *et al.* (2019) and Hänninen *et al.* (2017) identified similar challenges related to trust, as PFOs surveyed in their studies emphasized fear that they would be cheated, and their forest would be exploited. As an answer to these problems, the interviewees suggested that the promotion of examples of good practices and transparency of business could raise trust among PFOs. Besides, Laakkonen *et al.* (2019) suggest that positive experiences are reflected in raised trust between business partners. Though the results show that more challenges need to be addressed. One of them is that the operational environment is insufficient, as establishing contacts with PFOs is severely hampered, because in Slovenia information about PFOs is not publicly available. This problem of contacting PFOs was recognized in relation to different business models (e.g. Plevnik & Pezdevšek Malovrh,

2021; Pezdevšek Malovrh & Uhan, 2022), where authors suggest that institutions, such as the Chamber of Agriculture and Forestry of Slovenia or the Forest Owners Association of Slovenia could help when it comes to establishing contacts between tenants and PFOs. According to Triplat & Krajnc (2021), Laakkonen *et al.* (2019) and our results, contacts between potential business partners could be established via online platforms. Another challenge related to an insufficient operational environment appeared to be important as the interviewees emphasized that it is difficult to obtain information on business cooperation and forest leases, which results in the lack of tenants' knowledge (Kunc *et al.*, 2021).

The aim of this study was to investigate whether there is a potential for further development of this form of business cooperation. The results show that interest is present from forest managers and forest service providers which is in line with Ivetta & Pezdevšek Malovrh (2021). However, based on the results the interest of PFOs is questionable, because according to the interviewees PFOs interest in engaging in long-term business cooperation (forest lease) is less represented. Kurttila *et al.* (2016) and Hänninen *et al.* (2017) also report on a lack of interest of PFOs. Insufficient PFO interest could be the consequence of the lack of knowledge about forest management or business cooperation, their personal values or preservation of forests for the future (Feliciano *et al.*, 2017; Laakkonen *et al.*, 2019). Also, previous bad experiences, such as tenant-PFO disputes or frauds in timber sales, could be the reason for PFOs' resistance to the establishment of forest lease (Li *et al.*, 2020). The lack of interest and knowledge of PFOs makes the further potential for the development of business cooperation (forest lease) questionable. If we want business cooperation, such as forest lease to develop in the future, it will be important for PFOs to see forest leases as a simple, reliable, long-term and risk-free all-inclusive alternative for their forest ma-

nagement (Laakkonen *et al.*, 2019).

The study must consider some limitations regarding the interpretation of the results. The main limitation of this study is that it focuses only on the tenants and leaves out PFOs. Also, the sample is very limited, as the snowball approach revealed only eight cases of forest lease in Slovenia. It should also be noted that the interviews did not include questions about e.g. financial rates, length and conditions of the contract which could provide us with key information about current forest lease conditions in Slovenia. However, the results and limitations open up promising possibilities for future research of business cooperation (forest lease) in other countries or to examine the readiness of PFOs for such activities.

## Conclusions

Despite some limitations of this study, the results show that there is interest for business cooperation (forest lease) from forest service providers/managers as well as the capacity to spread forest lease among PFOs in Slovenia, as 77% of the country's forests are privately owned and insufficiently managed. Still, the results suggest that possibilities for future development of long-term business cooperation between PFOs and forest service providers/managers are still limited, because PFOs' interest to engage in business cooperation is questionable. If we want forest lease to be more common and successful, forest lease should be: 1) recognized (in legislation) as a form of business cooperation; 2) education about business cooperation (forest lease) should be given to public forest service employees; 3) public forest service employees should promote forest lease and provide information to PFOs; 4) a connection between potential business partners via online platforms should be established and promoted; and 5) examples of good practice should be promoted. With

raising awareness and education about the benefits of long-term business cooperation and establishing connections between reliable business partners as well as with the promotion of examples of good practice, trust between PFOs and forest service providers/forest managers would be built. This could cause an increase in PFOs' interest in this form of business cooperation and consequently increase the prevalence of long-term business cooperation (forest lease) in Slovenia. This could be reflected in enhanced efficiency of private forest management and consequently the utilization of wood from private forests could be improved.

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## Appendix 1. Code book

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### **1. Basic characteristics**

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- 1.1 Reasons for choosing forest leasing among different business models
  - 1.2 Setting up reasons
  - 1.3 Organizational structure
  - 1.4 Service provision for private forest owners
  - 1.5 Problems
  - 1.6 Forest owners' characteristics
  - 1.7 Possibilities for expanding the business model
  - 1.8 Forest owners' involvement in forest management
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### **2. Opinion about business cooperation (forest leasing)**

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- 2.1 Contribution to forest owners' wishes
  - 2.2 Prevalence of forest leasing
  - 2.3 Interest of different stakeholders (SFS, state, forest owners, timber purchasers)
  - 2.4 Operational environment
  - 2.5 Problems of operational environment
  - 2.6 Prepositions for future development
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### **3. Forest leasing and wood mobilization**

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- 3.1 Contribution to wood mobilization
  - 3.2 Facilitating factors
  - 3.3 Hindering factors
  - 3.4 Contribution to climate change
  - 3.5 Contribution to wood mobilization
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### **4. Other**

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