

**Mendel University in Brno
Czech Society of Landscape Engineers – ČSSI, z.s.**

**Public recreation and landscape protection
– with environment hand in hand?**



Proceedings of the 14th Conference

Editor: Jitka Fialová

9th–11th May 2023, Křtiny

MENDEL UNIVERSITY IN BRNO

Czech Society of Landscape Engineers – ČSSI, z. s.,



and

**Department of Landscape Management
Faculty of Forestry and Wood Technology
Mendel University in Brno**



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Editor: associate Professor Ing. Jitka Fialová, MSc., Ph.D.

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Under the auspices
of prof. Dr. Ing. Jan Mareš, the Rector of Mendel University in Brno,
of prof. Dr. Ing. Libor Jankovský, the Dean of the Faculty of Forestry and Wood Technology,
Mendel University in Brno,
of doc. Ing. Tomáš Vrška, Dr., the Director of Training Forest Enterprise Masaryk Forest
Křtiny, Mendel University in Brno,
of Ing. Dalibor Šafařík, Ph.D., the Chief Executive Office, Forests of the Czech Republic,



of JUDr. Markéta Vaňková, the Mayor of the City of Brno,



and of Mgr. Jan Grolich, the Governor of South Moravia,

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IMPLICATIONS OF THE NATURE OF FORESTRY AND WOOD ENTERPRISES IN LATVIA

Dastan Bamwesigye^{1,2}, **Ingus Grinbergs**³, **Amanda Puzule**³, **Tina Ķikule**³

¹*Department of Landscape Management, Faculty of Forestry and Wood Technology, Mendel University in Brno, Zemědělská 3, 613 00 Brno. Czechia*

²*Department of Forest and Wood Products Economics and Policy, Faculty of Forestry and Wood Technology, Mendel University in Brno. Czechia*

³*Forest faculty, Latvia University of Life Sciences and Technologies. Akademijas street 11, Jelgava, Latvia*

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Abstract

Latvia has a significantly developed forestry sector, which accounts for the largest share of the state's income under the management of the Ministry of Agriculture. Latvian State Forests manages a forest area of 1.4 million hectares, but the total managed area reaches 1.6 million hectares. The Total turnover of Latvia's State forests in 2021 reached 405.3 million euros. Irrespective of the success of the forest sector in Latvia, the structure and organization suffer setbacks such as the imperfections such as misinformation and other poor practices to the forest owners that benefit wood-buying companies and other countries such as Sweden. Understing the Latvian forest sector's challenges could improve it to meet the sustainability aspects, private forest owner needs, and welfare in the forest business. We conducted and presented qualitative and exploratory studies on Latvian forests at the macro level. Moreover, the study demonstrates the implications of the nature of forestry and wood enterprises in Latvia as well as recommendations for forest sustainability..

Key words: Forest and wood Enterprises, forest governance, Forest landscape conservation, Forest recreational services, imperfect information, sustainable forestry

Introduction

Latvia is one of the greenest countries in Europe with approximately 52% forest land, compared to 1923, when the forest cover in Latvia was only 23% (Investment and Development Agency of Latvia, 2022). Forest land occupies 3 million ha, of which 1,6 million ha of forest land is managed and administrated by Latvian State forests and the rest is owned by the private sector. The growth of forest areas is also predicted in the future, as the natural overgrowth of lands not used for agriculture, as well as artificial afforestation, will continue.

JSC "Latvia's State Forests" joint stock company (LVM) was established in 2000 and the main goal of the company is to ensure the preservation and increase the value of forests owned by the State. Also, important thing is to ensure the accessibility of the forests to the public, because it is common thing to spend weekends in the lap of nature in Latvia. The people of Latvia have long been associated with the forest - it has been a source of both food and health, a source of building materials and fuel, and an opportunity to relax and find inspiration (Latvijas valsts meži, 2022). At the moment, there are more than 300 tourist hiking places in the state forests.

Undeniably, the company is a stable partner in the market of timber, so the main aim of management is the production of high-quality timber. More than 23% of forests are managed to maintain the protection of nature. Moreover, to conserve biological diversity, the company also protects territories as forest stands for genetic resources of different tree species. Latvian State forests implement state interests considering the Latvian Forest policy by making a profit from timber selling.

The main part of income comes from selling timber, which was 6,64 million m³ (annual growth of 12 mil. m³) and net profit after taxes was 111,5 million euros in 2021. The main timber products are Roundwood and fuel chips. Latvian State forests provide not only recreation and hunting services but also provide a market with tree seeds and plants. For instance, nine nurseries owned by the company sold 55.3 million plants of which 12,9 mil. pieces were exported. State forests is responsible for forest road maintenance and constructed about 345 km in 2021 (Latvijas valsts meži, 2022b). Considering the various interests in society, the company's management aim is to provide the greatest possible added value and increase the number of new job opportunities for the locals. A total of 1280 employees were at LVM last year (Latvijas valsts meži, 2022c). The company has also set the values for employees – honesty, work results, achievements, competence and cooperation.

Each year, the enterprise implements projects in environmental clean-up, educates children about pollution and how to respect the environment, and pays attention to the popularisation of wooden buildings. LVM every year donates money to support educational projects, charity, culture and sports (Sveicars, 2022). So, the company, when planning its activities, is aware that it is responsible at every

step towards the company's employees, customers, owners, municipalities, business partners and the entire society of Latvia. The company is aware of its essential role in solving economic, social and environmental issues important to interested parties - the company's strategy is focused on the balanced development of economic, social and environmental areas.

So, at the end of the day, Latvia State Forests is responsible not only for the timber market and making a profit but caring about the entire society and the environmental landscape of Latvia, which is critical to maintaining forest sustainability. Because there is no viability of the forest, without educated individuals in the forest sector.

This qualitative and exploratory study on Latvian forests at the macro level. Moreover, the study demonstrates the implications of the nature of forestry and wood enterprises in Latvia as well as recommendations for forest sustainability

Material and methods

The study is purely qualitative. It explored the forestry sector of Latvia using major secondary sources. Various websites and other online databases were searched and data was obtained (Bamwesigye, 2019, Bamwesigye and Hlavackova, 2018, DiCicco-Bloom and Crabtree, 2006, Fossey, et al., 2002). Our study analysed the qualitative content to objectively achieve the aim of this work. Much of the work is from the country of study Latvia. The Latvian forestry sector suffers some inadequacies like the majority of the forest sectors around the world. Understanding such challenges could lead to opportunities that could promote sustainable forest management and government.

Results and Discussion

Latvia has a very developed forestry sector, which accounts for the largest share of the state's income. Mainly, we have to thank the Latvian State Forests, whose sole shareholder is the Ministry of Agriculture. Latvian State Forests has several structural units, including "LVM Mežsaimniecība", "LVM Zemes dzīles" ", "LVM Seeds and Plants", "LVM Recreation and Hunting", "LVM Business System Solutions". The company manages a forest area of 1.4 million hectares, but the total managed area reaches 1.6 million hectares. The net turnover of Latvia's State forests in 2021 reached 405.3 million euros. In the parish with 13 districts and a total area of 247,274 ha, several thousand people are employed and cooperation with a large number of private sector workers who develop forests according to state legislation has been promoted (Investment and Development Agency of Latvia, 2022, Sveicars, 2022).

However, it is much different in the private sector, there the ignorance of the forest owners is used for the benefit of the company, which buys the property, cuts the forest and sells the land to other countries - let's say to Sweden. In this way, increasing their revenues. It is also observed that the cuttings are made carelessly, leaving assortments that damage the forest soil by leaving ditches that have been created with tractors, and there are cases where even the forest owners don't pick up the phone later, simply don't fix the ditches or restore the forest infrastructure, and unfortunately, our forest services can't track everything so well, because there is no unified database, let's say it's like in Estonia, where every feeling is marked and the information is accessible to every civilian - not only those who work in the forest sector. However, Latvian State Forests is trying to eradicate it, because by concluding a contract with them, the company is strengthened evaluated, and there must be no violations - if there are any, the contracts are terminated, and no one wants that, because the encroached forests are of high quality and easy to develop, and many other benefits come from working with this company (Sveicars, 2022).

Let's take a look at one of the largest companies, here its activities are divided into forestry, logging, repair of forest machines and logistics, as well as accounting. In forestry, there is a forest evaluation process, it is determined what methods can be used to improve it, and how its infrastructure can be developed. After that, the logging master decides according to which methods and technological processes he will develop or maintain the feeling. Then all this is coordinated with the state forest service, which accepts or rejects the request. If accepted, then operations are carried out in logistics, bringing the tractor equipment to the felling so that it can be developed - the operator and the mechanic are responsible for the tractors, who tell whether the tractor needs maintenance, or whether the work can continue. The logging process is carried out and the assortment is delivered to the main log pile, where the logistics-secondary transport that takes the wood to the port or where it is at that moment begins to work harvest more profitably, of course taking into account other feelings and their pile volumes. After all this work, an economic calculation is made whether the felling was profitable or not, to know the day before whether it is profitable to take such feelings or not.

Implications of the Nature of Forestry and wood enterprises in Latvia

Forest and wood Enterprises in Latvia follow certain laws that are developed by the Ministry of Agriculture, supposed to maintain sustainable Forestry. Seeing as the forest areas and the wood resources are not decreasing in Latvia but on the contrary are continuing to grow, from 1923. when the forest cover in Latvia was 23% over time it doubled and reached 52% (Investment and Development Agency of Latvia, 2022, Legal Acts of The Republic of Latvia, 2015). That would mean that the laws that are set for forestry and wood Enterprises are helping to maintain sustainable Forestry, right? Unfortunately, there are still many articles and sources that claim that Latvian forestry is not sustainable and is ruining biodiversity.

In Latvia forestry and wood, Enterprise follows the goals and principles defined in Latvia's forestry policy, as well as the regulation contained in the forest law and other regulatory acts related to Forest management and nature protection. Latvian Forest management is sustainable and internationally recognized. The laws that the forestry and wood Enterprises must follow are meant to realise sustainable forest management which would include Forest management and use in a manner and intensity that preserves the forest's biological diversity, productivity, resilience, viability and potential in the present and Future, the ability to fulfil important ecological, Economic and Social functions locally, nationally and global level, and does not pose a threat to other ecosystems.

One of the main reasons that forestry in Latvia is considered sustainable is because of the goal of Forest restoration to create productive and biologically sustainable forest stands that would provide the economy with the necessary wood products and income for the forest owner. According to the Forest Law, every forest owner or legal possessor is obliged to restore the forest within five years. The requirements of the reforestation regulations and the decisions taken by the forest owners or legal owners in the selection of the tree species to be rehabilitated ensure the reforestation with five main tree species, which are the most valuable. So, if everyone has to follow the laws based on sustainable forestry, felling forests in accordance with nature protection laws, reforestation up to a certain period of time, with a certain amount of trees per ha and even with the most economically valuable species, why are there people who believe that forests are not sustainably managed? One keyword that often appears in the definition of sustainable Forestry, is sustainable forestry standards for Latvia (Estonian Fund for Nature, 2020).

In Latvia, the national economy is largely based on the production of wood products, and the forest industry is one of the most significant segments of the economy. The problem is the rapid demand for biomass, from countries such as the Netherlands, Denmark and Great Britain and Latvia's desire to meet this demand, as well as the desire of owners and companies not to miss the opportunity to get better profits. Because if the demand for wood is high the prices, they are willing to pay also go up, so in forest owners' opinions it's the best time to cut down the forests and receive higher pay. So, in Latvia, the main problem occurs when there's a high demand in the market for wood, and wood products (Estonian Fund for Nature, 2020). Thus, it leads to intensive logging where the extraction of wood for different kinds of products place an increasingly important role. It has led to a rapid decrease in carbon sequestration in Latvian forests and some even say that in the future the forest lands will become a CO₂ source rather than an absorber. Species biodiversity is an important indicator of forest health but it is vastly affected by clear cuts and deforestation in general. Clearcutting is one of the most used deforestation methods in Latvia, it is more harmful to the forest diversity, it strongly affects the change of habitat for birds, animals, and insects as well as erosion. Seeing that, does it really mean that sustainability standards based on voluntary certification ensure the role of maintaining natural diversity and maintaining climate change?

In overall view, Latvia has strong laws and standards that forest and wood Enterprises must follow. Forestry is one of the most important economic resources for Latvia. Some Forest Enterprises may find loopholes in the law to wreak more benefits but it won't go unnoticed for long, because in the end forestry is one of the main income for the Latvian government and they will not jeopardize the sustainable income, so they will strive for sustainable Forestry and having the pressure from the EU they will do it correctly. There will always be people who will not be satisfied with the government's choices but they are also the people who will put pressure on the government and set some kind of boundaries that they won't be able to cross.

Conclusion and Recommendations for forest sustainability in Latvia

We could carry out sustainable forest improvement, firstly, starting with the education of forest owners, which would be Latvia's State forest responsibility. Secondly, to create a single database that provides inventory data and the contract price offered for forest ownership. Balancing small companies that destroy the economy of large companies, as well as luring employees with softer conditions towards work culture, work safety should be the priority (Zute-Vītola, 2022).

Establishment of price floor for the forest to avoid cases of fraud, and forest companies and owners would compete with investors from other countries. Moreover, Latvia would ensure both forest control and smart management. In the list of the hundred largest private forest owners, 54 companies belong to foreign investors and 46 to Latvians. Approximately 78,000 hectares of Latvian forests belong to "IKEA", moreover, the company acquired such large forest areas in a relatively short time, taking over other companies that decided to leave the Latvian market.

People in Latvia still tend to pollute forests with garbage. This is confirmed both by last year's increase in the amount of waste collected in the state's forests and by the observation of foresters. Cameras discourage people from littering, but they cannot be installed in the entire forest.

References

- Bamwesigye, D. (2019). Expressed Preference Methods of Environmental Valuation: Non-Market Resource Valuation Tools. *Journal of Landscape Management*, 10 (1).
- Bamwesigye, D, Hlavackova, P. (2018). Forest wood production in Tropical Africa. *Journal of Landscape Management* 9(1), 39-45. ISSN1804-2821
- DiCicco-Bloom, B. and Crabtree, B.F., (2006). The qualitative research interview. *Medical education*, 40(4), pp.314-321.
- Fossey, E., Harvey, C., McDermott, F. and Davidson, L., (2002). Understanding and evaluating qualitative research. *Australian & New Zealand journal of psychiatry*, 36(6), pp.717-732.
- Estonian Fund for Nature, (2020). Hidden inside a wood Pellet: Intensive logging impacts in Estonian and Latvian forests [online] Available: https://media.voog.com/0000/0037/1265/files/Biomass_report_ENG%20_2020.pdf (Accessed on 04.18.2023).
- Investment and Development Agency of Latvia, (2022). Forest Industry. [online] Available: <https://www.liaa.gov.lv/en/trade/industries/forest> (Accessed on 04.18.2023).
- Latvijas valsts meži, 2022a. Uzņēmuma stratēģija. [online] Available: <https://www.lvm.lv/par-mums/uznemuma-strategija> (Accessed on 04.18.2023).
- Latvijas valsts meži, 2022b. Skaitļi un finanses. [online] Available: <https://www.lvm.lv/par-mums/skaitli-un-finanses> (Accessed on 04.18.2023).
- Latvijas valsts meži, 2022c. Skaitļi un fakti. https://www.lvm.lv/images/lvm/Par_mums/Skaitli_un_finanses/lvm-fakti-lv-2022-wk.pdf (Accessed on 04.18.2023).
- Latvijas valsts meži, 2022d. Sociālā atbildība [online] Available: <https://www.lvm.lv/par-mums/sociala-atbildiba> (Accessed on 04.18.2023).
- LEGAL ACTS OF THE REPUBLIC OF LATVIA, 2015. On the guidelines for the development of forestry and related industries 2015-2020. for the year. Cabinet of Ministers, 2015/196.1 (2020) [online] Available: <https://likumi.lv/ta/id/276929-par-meza-un-saistito-nozaru-attistibas-pamatnostadnem-2015-2020-gadam> (Accessed on 04.18.2023).
- Sveicars, R, (2022). Scandinavians dominate Latvian forests. [online] Available: <https://www.la.lv/latvijas-mezos-domine-skandinavi> (Accessed on 04.18.2023).
- Zute-Vītola, L (2022). Garbage collected in forests is increasing. Reportage from the Daugavpils suburban forest. [online] Available: <https://www.la.lv/latvijas-mezos-domine-skandinavi> (Accessed on 04.18.2023).

Souhrn

Lotyšsko má značně rozvinuté lesnictví, které tvoří největší část příjmů státu spravovaného ministerstvem zemědělství. Lotyšské státní lesy obhospodařují lesy o rozloze 1,4 milionu hektarů, ale celková obhospodařovaná plocha dosahuje 1,6 milionu hektarů. Celkový obrat Lotyšských státních lesů v roce 2021 dosáhl 405,3 milionu eur. Bez ohledu na úspěch lesnického sektoru v Lotyšsku trpí jeho struktura a organizace nevýhodami, jako jsou nedokonalosti, například dezinformace a další špatné postupy vůči vlastníkům lesů, z nichž těží společnosti nakupující dřevo a jiné země, například Švédsko. Podcenění problémů lotyšského lesnického sektoru by mohlo vést k jeho zlepšení, aby splňoval aspekty udržitelnosti, potřeby soukromých vlastníků lesů a blahobyt v lesním hospodářství.

Provedli jsme a prezentovali kvalitativní a průzkumné studie o lotyšských lesích na makroúrovni. Studie navíc ukazuje důsledky povahy lesnictví a dřevařských podniků v Lotyšsku a také doporučení pro udržitelnost lesů.

Contact:

Dastan Bamwesigye, PhD

E-mail: xbamwesi@mendelu.cz

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