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Latvijas Finieris

# Economic Assessment and Development Scenarios for the Balanced Growth Potential of Latvia's Forestry Sector

## Research Summary

2025

# About the Research

The **aim of this research** is to assess the impact of different forest land stratification and forestry development scenarios on public benefits, taking into account economic returns, carbon sequestration, recreational and cultural values, as well as public trust in forest policy. The study addresses the question of whether a fixed territorial distribution —such as the conceptually discussed "70–20–10" proportion framework—can ensure an optimal balance between diverse public interests and the functional roles of forests.

**The main objective** is to identify a scenario or stratification model that would enable the achievement of the highest possible overall public benefit without disproportionately sacrificing any single goal.

**Research Methods Used**

The research methodology integrates a four-dimensional assessment encompassing financial, ecological, biodiversity, and socio-economic values. Quantitative models were applied, including Net Present Value, carbon sequestration analysis, Pareto optimization, stratification quadrants, and Multi-Criteria Analysis (MCA), alongside qualitative analysis based on **expert evaluations (n > 50) and public surveys (n = 1004).** This combined approach enables a comprehensive assessment of the scenarios' impacts on public benefits**.**

The study develops and analyses **four hypothetical development scenarios** that differ in their priorities and stratification:

| Scenario | Description |
|---|---|
| **IKD (Conventional Management Scenario)** | Maintains the current approach with moderate management activity and minor changes in stratification. Features lower intensity, medium economic returns, and limited carbon sequestration. |
| **ZD (Green Deal Scenario)** | Focuses on biodiversity conservation and low anthropogenic impact. Characterized by reduced management activity, high natural values, but low economic output. |
| **IM (Intensive Forestry Scenario)** | Promotes higher intensity in the management zone with traditional species. Increased productivity, moderate carbon sequestration, and limited recreational value. |
| **IMA (Intensive Forestry with Afforestation Scenario)** | In addition to the elements of the IM scenario, it includes afforestation of new areas to enhance carbon sequestration and production volumes. Features high economic returns and the best carbon performance. |

**Three complementary methods were used to analyse the four development scenarios** — the balance efficiency curve, the stratification quadrant map, and the Pareto equilibrium model — to assess the effectiveness of trade-offs between economic, environmental, and social objectives.

# SUMMARY

## Comparison of the Economic Value of Development Scenarios

**The highest overall economic contribution is provided by the Intensive Forestry with Afforestation (IMA) scenario**, which includes additional afforestation activities and therefore generates both higher gross value added and a greater multiplier effect.

The most significant contribution categories are within the forest and wood industries, **with the highest gross value added observed in the Intensive Forestry with Afforestation (IMA) scenario (€1,039 million).**

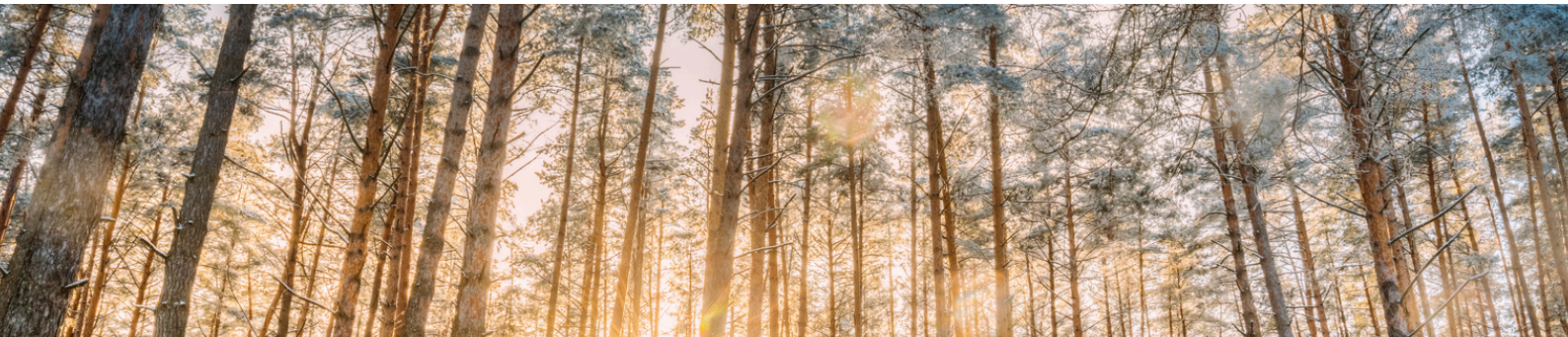
**The $CO_2$ market value** is high across all scenarios, ranging from €1,197 million to €1,231 million.

The multiplier effect is particularly significant in the Intensive Forestry with Afforestation (IMA) scenario (€1,148 million).

Other categories, such as recreational value, the market value of non-timber forest products, and labour tax revenues, are comparatively smaller but make a significant complementary contribution to the overall impact.

Scenario analysis shows that **forestry intensification and afforestation activities (IMA)** generally result in a higher net present value (NPV) by 2050, compared with the conventional or Green Deal (ZD) scenarios.

| Scenario | Net Added Value Change Compared to Baseline (million EUR) | Change (%) | Impact |
|---|---|---|---|
| **ZD (Green Deal Scenario)** | –35 | –1% | Lowest economic return, minor carbon gain. |
| **IM (Intensive Forestry Scenario)** | 126 | 4% | Moderate economic benefit, with increased timber output and $CO_2$ sequestration. |
| **IMA (Intensive Forestry with Afforestation Scenario)** | 375 | 11% | Highest overall value, strongest NPV dynamics, and synergy with carbon targets. |



# SUMMARY

## Move toward “optimized stratification” rather than a formal proportional approach

Currently, approximately 14% of Latvia’s forests are under some level of protection, of which 7% are strictly protected, where economic activity is almost entirely prohibited. However, in line with the European Green Deal’s direction, a substantial expansion of these protected areas is being considered — up to 30% of total forest land, including 10% designated as strictly protected zones.

This potential territorial distribution is often referred to as the **“70–20–10 principle”** — allocating 70% of forests for economic use, 20% for general protection, and 10% for strict protection. However, such changes would have a significant impact on forest utilization, particularly in economically active areas.

While such a scheme may serve as a useful conceptual framework, t**he study’s results clearly show that this mechanical proportion cannot deliver maximum public benefit unless it is adapted to the specific characteristics of different territories.**

The results of the socio-economic modelling conducted in the study indicate that:

A proportional approach ignores **regional differences** in forest structure, biodiversity, and production potential.

**The potential for carbon sequestration and economic return is distributed inefficiently —** for instance, land units with high carbon sequestration capacity may not be included in protected areas, while low-productivity forests remain designated for commercial use.

The opportunity to strategically locate recreational areas closer to populated areas or culturally significant sites is lost.

Therefore, to reach the peak of the balance curve — that is, to achieve the highest possible overall public benefit (economic, carbon sequestration, recreational, and biodiversity value) — **a flexible, data-driven stratification approach is required.**

Key elements of an optimized stratification approach:

- **Biodiversity assessment** – using species and habitat data to evaluate areas by their ecological significance and prioritizing them for inclusion in protected zones.
- **Economic potential analysis** – assess forest growth intensity, accessibility, and the potential to ensure high timber output with minimal environmental impact.
- **Carbon sequestration modelling** – apply dynamic carbon models to project $CO_2$ sequestration potential under different management regimes.
- **Social function mapping** – identify areas with high recreational or cultural value, particularly in peri-urban regions where public demand for recreation is higher.

# SUMMARY

## Strategically concentrate conservation and recreational functions within 30% of the territory

The current development of Latvia's forestry sector reveals a significant structural imbalance — different forest functions (production, conservation, recreation) often overlap, creating competing interests within the same areas. This leads to long-term conflicts between ecological and economic objectives, reduces efficiency, hinders investment, and generates public dissatisfaction with decision-making processes.

Modelling results show that structuring the **functional distribution (stratification)** can generate substantial public benefits when based on data, spatial assessment of ecosystem values, and analysis of societal needs. By concentrating conservation and recreational functions within **approximately 30% of the territory, three key benefits can be achieved:**

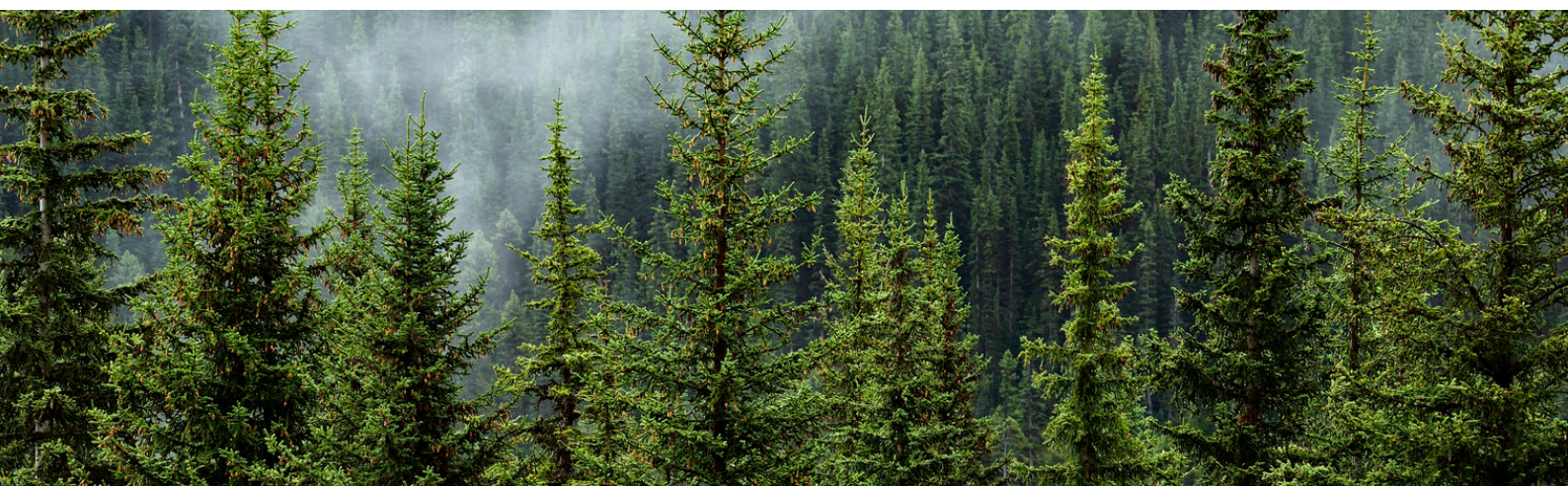
**Reduce conflicts between production and conservation objectives,** thereby allowing more intensive management in the remaining territory.

**Maintain high ecosystem values in a compact form, e**nabling more efficient management of biodiversity, cultural heritage, and socially significant recreational areas.

**Achieve aesthetic, educational, and recreational goals** without losing the overall economic momentum of the forestry sector.

As confirmed by the public assessment conducted within the study, recreational functions are perceived as particularly important — residents highly value the role of forests in promoting health, mental well-being, education, and national identity. Therefore, the study's recommendations emphasize **maintaining recreational values in a more compact and higher-quality form** — by developing well-equipped nature trails, access infrastructure, observation towers, and educational centres, which improve accessibility and increase public benefit per unit of territory.

**The concentration of nature protection zones** should be based on a spatial assessment of biodiversity, particularly the distribution of habitats and ecological corridors. This approach, also applied in Finland and Sweden, ensures higher ecological and management efficiency.



# SUMMARY

## Increase productivity within the 70% managed forest zones

The analysis shows that the potential "70–20–10" distribution, without adjustments, does not ensure maximum public benefit — the net present value (NPV) is lower than it would be with more targeted, intensive, and modernized management across 70% of the territory. **Formal stratification alone is insufficient — the efficiency of recreational, conservation, and production zones must all be improved.**

The current situation indicates that Latvia's commercial forestry segment is unable to fully utilize its available potential — limited tree growth intensity, relatively low productivity, and outdated infrastructure hinder not only timber extraction but also restrict opportunities for carbon sequestration, forest regeneration, and innovation (e.g., within the bioeconomy).

**Recommended Strategic Directions:**

**Intensify forestry practices within the commercial zone** by adapting management methods to favour higher-yield tree species (e.g., hybrid aspen, fast-growing spruce or pine varieties, etc.), thereby simultaneously increasing timber volume and carbon sequestration capacity;

**Promote targeted afforestation in degraded or low-yield areas** where agriculture is not economically viable, thereby increasing both forest cover and production potential;

**Implement precision forestry technologies** such as drone monitoring, the use of satellite data, and AI-based timber growth models to improve decision-making and reduce losses;

**Invest in forestry infrastructure,** including access roads and forest drainage systems, which are essential prerequisites for efficient and sustainable production.

Such an approach would not only increase the economic return from 70% of the territory but also reduce pressure on the remaining zones, providing greater flexibility in achieving environmental and recreational objectives. Moreover, higher productivity creates the foundation for greater value addition in the wood processing and biomass sectors, while strengthening the global competitiveness of Latvia's forestry industry.

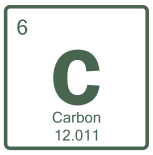
To reduce conflicts between economic interests and nature conservation, **it is necessary to legally establish the "70–20–10 stratification principle" as a standard in Latvia's forest policy.** This would provide a clear and balanced framework for land use distribution — 70% for economic activity, 20% for limited management, and 10% for strict protection.

# SUMMARY

## Reject the automatic expansion of the Green Deal (ZD) framework

The Green Deal (ZD) scenario, positioned as a key pathway toward climate neutrality and biodiversity conservation, was evaluated in the study alongside other development scenarios (IKD, IM, IMA). The results indicate that, in its current form, the ZD scenario is not an optimal solution for Latvia's conditions when applied on a large scale. On the balance efficiency curve, ZD occupies a so-called "left-shifted" position — meaning that its overall public benefit (economic, carbon, and social) is lower compared with other combined strategic approaches.

The study concludes that:




**Carbon sequestration indicators are moderate,** as natural forests or passive protection areas absorb $CO_2$ significantly more slowly than actively managed areas with high-yield plantations (as in afforestation scenarios such as IMA).

**Public perception of the Green Deal (ZD) scenario is mixed —** it is appealing to part of society due to its recreational and natural values, yet low economic activity raises concerns about local development and potential job losses.

The economic return in the Green Deal (ZD) scenario is the lowest — timber extraction, exports, tax revenues, and local employment potential all decline.

Based on multidimensional analysis (multi-criteria modelling, expert evaluations, and public surveys), it is concluded that:

**The Green Deal (ZD) scenario should not be applied mechanically or automatically as a guiding principle for forest policy across the entire territory.** Its expansion without thorough evaluation could result in substantial net losses to society — both direct economic and indirect social. At the same time, the potential of ZD should not be dismissed entirely; however, its implementation must be targeted, data-driven, and evaluation-based, with a clear mechanism to ensure compensation or incentives for landowners who forgo economic activity.

# SUMMARY

## Public Perception of Forestry Sector Development

### THE IMPORTANCE OF FORESTS IN SOCIETY

- 78% of residents live within 5 km of a forest, indicating that forests are an integral part of daily life.
- 70% expect the economic value of forest resources to increase in the future.

### A SKEPTICAL ATTITUDE TOWARD FOREIGN INVESTORS

- Only 8% of residents in Riga and the surrounding region fully support the presence of foreign investors in the forestry sector; in other regions, the proportion is even lower.
- Approximately 25% express complete opposition, particularly in Kurzeme and Zemgale.

### KRITIKA PAR VALSTS PĀRVALDĪBU MEŽU JOMĀ

- 67% believe that profit-oriented objectives dominate state forest management.
- Only about 26% believe that forest management is balanced.
- Residents lack confidence in the state's long-term vision for forest protection.

**37%**

**REGULARLY VISIT FORESTS FOR RECREATION, RECOGNIZING THEIR IMPORTANCE FOR QUALITY OF LIFE**

**72%**

**SUPPORT THE IDEA THAT THE STATE SHOULD PROVIDE COMPENSATION TO PRIVATE OWNERS FOR FOREST CONSERVATION**

**81%**

**SUPPORT STRICTER FOREST PROTECTION MEASURES**

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# SUMMARY

## Expert Assessment of Forestry Sector Development

### BALANCE BETWEEN ECONOMY AND ENVIRONMENTAL PROTECTION

- Academic experts consider that a relative balance exists, yet it is threatened by intensive logging and climate change.
- Environmental experts emphasize that economic interests dominate and that the current regulatory framework fails to ensure equilibrium.
- Key issues highlighted include habitats, Natura 2000 sites, and micro-reserves, where clarity and compensation mechanisms are often lacking.

### LABOUR FORCE AND REGIONAL CAPACITY

- Experts emphasize an acute labour shortage, especially in rural regions, along with low wages and a lack of interest among young people.
- The training system is ineffective, and there is no clear strategy to retain qualified workers within the sector.
- This issue is particularly highlighted by industry and public sector experts, who also stress the impact of regional depopulation.

### PRODUCTIVITY AND TECHNOLOGICAL DEVELOPMENT

- Low labour productivity remains a key issue, significantly lagging behind the levels observed in Lithuania, Estonia, and the Nordic countries.
- The potential for automation and digitalization is not being fully utilized due to structural challenges such as inadequate workforce skills and limited investment.
- Constraining factors include insufficient infrastructure, restricted capital investment, and low innovation capacity.

### REGULATORY ENVIRONMENT AND ADMINISTRATIVE BURDEN

- The high level of bureaucratic burden is cited as an obstacle to effective management.
- Experts criticize regulatory fragmentation, non-transparent decision-making processes, and contradictory or disproportionate rules.
- They call for regulatory optimization and simplification of legal frameworks.

### STRATEGIC PRIORITIES AND PUBLIC ENGAGEMENT

- There is a lack of a long-term national strategy for the forestry sector.
- Experts highlight the need for compensation mechanisms for management restrictions, greater public education and participation, and a data-driven policy framework integrating ecosystem services (TEV, ESV, NCA).
- They also recognize increasing public pressure for stronger environmental standards and emphasize the need to build trust and improve communication.

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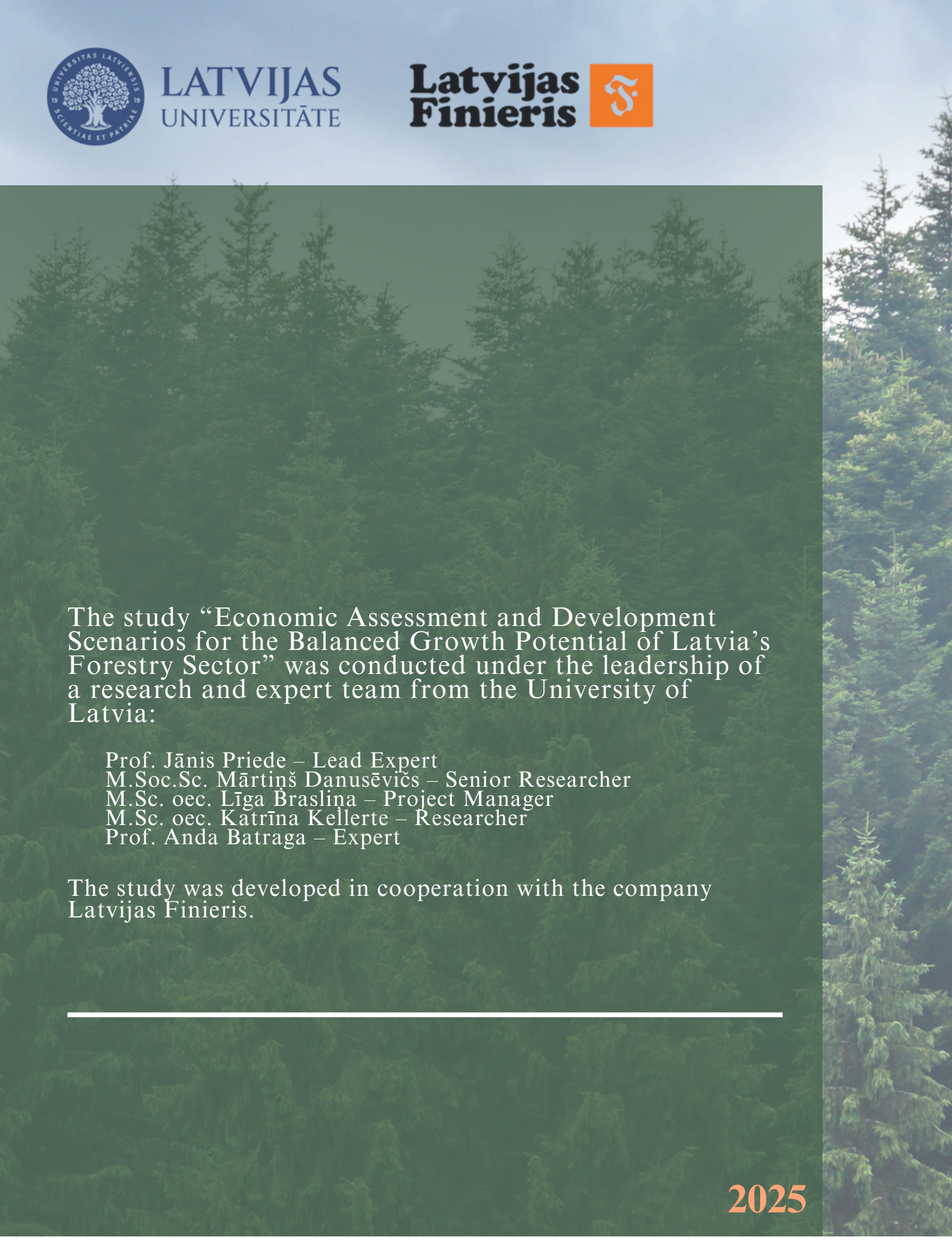

The study “Economic Assessment and Development Scenarios for the Balanced Growth Potential of Latvia’s Forestry Sector” was conducted under the leadership of a research and expert team from the University of Latvia:


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The study was developed in cooperation with the company Latvijas Finieris.

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