Economic Accessibility of Forest Resources in Russia

Bruce Michie, Ari Pussinen, Kaija Saramäki, Andreas Ottitsch
(In cooperation with St. Petersburg Forest Technical Academy and All Russian Institute of Forest Specialist Education and Training)


European Forest Sector Outlook Studies (EFSOS) by EFI, Alterra, UN-ECE

Roundwood Trade (million cubic meters)*

Major Roundwood Trade Flows Between European Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Exports</th>
<th>Country</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russian Fed</td>
<td>Finland</td>
<td>13.56</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>Sweden</td>
<td>4.79</td>
<td></td>
</tr>
<tr>
<td>Russian Fed</td>
<td>Sweden</td>
<td>2.85</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Austria</td>
<td>2.79</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>Sweden</td>
<td>2.22</td>
<td></td>
</tr>
<tr>
<td>Czech Rep</td>
<td>Austria</td>
<td>2.12</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>Belgium</td>
<td>1.78</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>Finland</td>
<td>1.78</td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>Italy</td>
<td>1.65</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>Austria</td>
<td>1.58</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>Italy</td>
<td>1.58</td>
<td></td>
</tr>
</tbody>
</table>

* 2001 data

Source: EFI/WFSE forest products trade flow database
Introductory Question: What is a Forest?

Answer (this study):
• Trees located in forest management units
• Novgorod region of Russia (7 leshozes)

we assume:
• Economic accessibility estimates can be based on forest volume, location and removal costs

Removal costs:
harvest costs
forwarding costs
processing costs
forest road transport costs
road transport costs
reforestation costs
**total cost (rubles/m3)**
### Assumed process costs:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Setup Costs (per hectare)</th>
<th>Variable Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Costs</td>
<td>380.00</td>
<td>32.10 Rubles/m³</td>
</tr>
<tr>
<td>Forwarding</td>
<td>290.00</td>
<td>6.20 Rubles/m³/km</td>
</tr>
<tr>
<td>Roadside Processing</td>
<td>125.00</td>
<td>0.40 Rubles/m³/km</td>
</tr>
<tr>
<td>Forest Road Transport</td>
<td>125.00</td>
<td>7.10 Rubles/m³</td>
</tr>
<tr>
<td>Road Transport</td>
<td></td>
<td>0.20 Rubles/m³/km</td>
</tr>
<tr>
<td>Total Fixed Setup Costs</td>
<td>920.00</td>
<td>1850.00 Rubles/ha</td>
</tr>
<tr>
<td>Sowing</td>
<td></td>
<td>572.00 Rubles/ha</td>
</tr>
<tr>
<td>Corifer Mill Gate Price</td>
<td></td>
<td>650.00 Rubles/m³</td>
</tr>
<tr>
<td>Soft Hardwood Mill Gate Price</td>
<td></td>
<td>460.00 Rubles/m³</td>
</tr>
<tr>
<td>Hard Hardwood Mill Gate Price</td>
<td></td>
<td>750.00 Rubles/m³</td>
</tr>
</tbody>
</table>

Method developed together with St. Petersburg Forest Technical Academy (Galina Filoushkina) and All Russian Institute of Forest Specialist Education and Training (Anatoly Petrov)

### Distance to leshoz center:

![Distance map](image_url)
Data:

- Inventory data at management unit level
  - merchantable stands:
    - area (ha)
    - conifer volume (m$^3$)
    - soft hardwood volume (m$^3$)
    - hard hardwood volume (m$^3$)
  - GIS - maps of management units
  - Road networks
Forest Groups:

First-group forests shall include forests whose main purpose is fulfillment of water-conservancy, protection, sanitation-and-hygiene, health-improvement and other functions, and also forests of expressly protected natural territories.

Second-group forests shall include forests in areas with high population density and a ramified network of ground transport ways, forests with water-conservancy, shelter, sanitation-and-hygiene, health-improvement and other functions, and with limited importance for exploitation, and also forests in areas with inadequate forest resources whose preservation requires restriction on the regime of forest use.

Third-group forests shall include forests of areas abounding in forests and mainly of exploitation importance. The preservation of the ecological functions of these forests must be ensured in the procurement of wood.
Many trees are not in forest management units

Trees are also located in agricultural management units, national parks, wildlife preserves, nature monuments and urban areas.
Results:

Forest coverage in percent from EFI’s European Forest Map


Conifer Volume by Road Distance

- Vakhovskiy
- Pokrovskiy Raion
- Okhtubsky
- Mednyanskiy
- Kupetskiy
- Donetskiy
- Barovskiy

Distance in km

cubic meters
Conifer Volume by Mill Distance

Note: 34 Rubles = 1 Euro
Conclusions:

- Russian resources are cheap and accessible
- Economic accessibility calculations provide a method for determining minimum stumpage prices
- Infrastructure may be limiting
- Labor is cheap but training may be limited
- Nature conservation may increase
- Long distance hauling costs are not considered here