Dr. Eugene Lopatin, Prof. Lauri Sikanen, MSc. Anton Kuzmin
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Forest sector of Ukraine with emphasis to opportunities in bioenergy markets

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Aims of the study

• To map the existing capacities for forest energy production and consumption (sawmills, pulp mills, cities, district heating plants, pellets producers and consumers)
• To map existing commercially exploitable forest biomass potential in the project countries
• To identify the business opportunities in forest energy sector of the project countries
• To create spatially-explicit energy online database (map application with attribute information: sawmills, district heating plants, biomass potential, forest biomass accessibility, forest biomass utilization opportunities).

Forestry in Ukraine, key facts

• Annual Allowable Cut – 15 mln. m³, actual harvesting 12,8 mln. m³, taking into account illegal logging (30%) around 17 ml. m³
• Forest area 16% from the total country land
• 100% of the forests are owned by the state since 1917, before 1917 70% of the forests were private
• Long-term practice of forest management and harvesting by the state (Goskomleshozes), as in Russia before 2006
• Investments to the roads construction are not clear
• 50 forest “owners”: Goskomleshoz, Ministry of Agriculture, Ministry of Defence, etc.
• Export of wood in 2009 was 38% from all harvested wood, around 6 mln.m³
• 50% of forests were planted and intensive maintenance is needed
Forest sector policy in Ukraine

• The Forest Code (21.01.1994 p. № 3852-XII) is the main legislative document in Ukrainian forest management. It determines legislative aspects of forest management as a subject of land tenure.


• The Ukrainian Land Code (25.10.2001 p. № 2768-III) regulates land relations in forest, flora and fauna management. It incorporates all the aspects for land use: territorial basis, natural and production resource, sustainable management and land protection, requirements in ecological safety, non-intervention to activities of citizens, legal entities and local communities related to their ownership, exploitation and land use, unless otherwise provided by the law.
New trends in forest sector policy in Ukraine: 2010

• New model for state forests management: example Poland
• Reforms in former leshozes: new private forest management companies (currently 6% of the budget for forest management)
• Private companies:
  – Harvesting
  – Regeneration
  – Thinnings and other forest management activities
  – Forest management will be paid by the government
• Result: Jan – May 2010 – 53% of the wood was harvested by SMEs
• Reforms in former leshozes: new private forest management companies (currently 6% of the budget for forest management)
• Target: to exclude the harvesting from operations and concentrate only on forest management
• Wood price reduction to 25%
Distribution of forest land by administrative districts

Data source: State Forestry Committee of Ukraine
http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=62921&cat_id=32867

Species composition and forest cover

Data source: State Forestry Committee of Ukraine
http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=62921&cat_id=32867
Species composition: official forest map of Ukraine

Data source: State Forestry Committee of Ukraine
http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=62921&cat_id=32867

Forest cover structure from remote sensing data, 2000

Trends in forest regeneration and protection


Regions with presence of radioactive pollution

Data source: Main Forestry Office of Ukraine
Regions with presence of radioactive pollution

Data source: Main Forestry Office of Ukraine

Chernobyl: abandoned area with a lot of polluted biomass growing from 1986

Photo source: www.tema.ru/travel/chernobyl/
Annual Allowable Cut and Harvesting in 2009

Data source: Interview with the heads of the state forest management enterprises, October 2010
Note: Thinnings are not included into AAC calculation in Ukraine, same approach as in Russia in 1990s

Harvesting in 2009 by tree species

Data source: Interview with the heads of the state forest management enterprises, October 2010
Industrial wood products in 2003-2009

- Wood, sawn or chipped lengthwise, of a thickness more than 6 mm, thsd. m³
- Non-continuous wood blocks, strips and frances for parquet or wood block flooring, continuously shaped, unassembled, thsd. m²
- Plywood, thsd. m³
- Unprocessed particle board, thsd. m³ conventional
- Peeled veneer, thsd. m³


Forest industry

Data source: Companies information, October 2010
Customers of industrial wood

Data source: Companies information, October 2010

Electricity production in 2003-2009

**Pellets Market in 2009**

- Sales of agriculture pellets (straw, sunflower husks, in future rape straw) increased on 300% in 2009
- Sales of wood pellets decreased on 30% in 2009 due to the lack of sawdust from furniture sector and sawmills
- Main consumers: Poland, Germany, Baltic countries
- Pellets production 370 th. t., 87% for export:
  - 80% sunflower husks
  - 16% wooden residuals
  - 4% straw
- Major SME’s were producing pellets for own use (sunflower oil extraction mills)
- Export price for agriculture pellets 130 euro per t.
- Limitations for wood pellets production:
  - Large distance to the harbours
  - Low amounts of wood residuals
  - High transportation costs

**Suitable areas for wood pellets production with forest cover more than 30%**

Data source: State Forestry Committee of Ukraine

http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=62921&cat_id=32867
Wood pellets production potential

- **Sources:**
  - Pulpwood processing residuals, fuel wood
  - 20% from sawn wood
  - Residuals from plywood

- **Total potential amount of available resources** 5 mln. m³ (pellets 900 000 t.)

- **Taking into account demand from board mills in future 10 years potential production is** 600 000 t. (in 2009 was only 59 000 t.)

- **Agriculture pellets potential around 12 mln. t. per year** (in 2009 was only 310 000 t.)

- **Prices for wood pellets in Kiev:**
  - 15 kg packs – 110 euro per t.
  - 50 kg packs – 90 euro per t.
  - Big-bag (0.9-1.4t) – 85 euro per t

- **Limitations for wood pellets production:**
  - Large distance to the harbours
  - Low amounts of wood residuals
  - High transportation costs

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Potential consumption by large CHP (2 MW), 456 cities

Pellets consumption potential

- Population of Ukraine: 46 mln. people
- Domestic consumption is limited by absence of local infrastructure for using pellets
- Main potential consumers: small private house owners, offices, buildings with limited gas supply
- The reconstruction is needed for many state large scale heating plants
- Price for pellets in Poland is 2 times higher then in Ukraine
- Limitations
  - Low gas prices, but during next 4-5 years gas price will be the same as in Europe
  - No real governmental measures to promote bioenergy
  - Currently pellets heating plants are more expensive than coal or gas plants
- Available equipment at the local market
  - Small pellets boilers Buderus, 45 kW, EUR1550
  - Small pellets boilers Viadrius, 58 kW, EUR1410
  - Small Ukrainian pellets boilers Ross, 56 kW, EUR1000
Online information services developed in KIEMET project

Additional information and maps:
www.metla.fi/metinfo/kie

Eugene Lopatin
Tel +358 13 251 4479
Mobile +358 50 441 6302 / +358 46 810 1514
eugene.lopatin@uef.fi

www.uef.fi