

**Case Study 5. Current and potential use of wood biomass in Russia and trade with Japan: threats and opportunities** - by Andrey Laletin, *Friends of the Siberian Forests, Russia*

Mankind has used woody biomass for energy for millions of years, and has continued to do so even in the fossil fuel era. Indeed, in countries with extensive forests there has been a steady increase in the production of bio-energy, including energy produced from woody biomass, in recent years.

Russia is one such country. The total area of forests in Russia is more than 540 million ha, and the total timber volume is around 82 billion m<sup>3</sup>.<sup>1</sup> Fortunately in many parts of Russia (especially in Siberia and the Far East) there are not many roads, meaning that the majority of these forests are not accessible for industrial purposes.

Wood as a fuel is only relatively sustainable, primarily because many decades are needed for it to grow. One can—as proposed by Professor Reimers—consider forests as an exhaustible natural resource, because the timber can be extracted faster than it can regenerate. Forests are natural ecosystems, and can only be considered a renewable resource if their management is truly sustainable and environmentally balanced.<sup>2</sup> This means that current management conditions must be of such a quality that all future forest ecosystems can survive.

For Russia one of the most urgent tasks that currently needs to be addressed is the inefficient use of wood wastes and wood from the secondary forests (birch and aspen) that have grown in place of many primary coniferous forests. One can consider wood waste as the product of an incomplete processing chain—in other words, rather than seeing it as a waste, it is seen as a raw material for the production of heat and electricity. A large quantity of this material is generated in cutting areas, in the processes of felling and thinning, and it includes fragments of trunks, tree crowns, small-diameter trees, and other pieces. It also includes wood chips, cutting boards, and bark. According to the estimates of



*Siberian forest. Photo courtesy: A. Laletin*

---

<sup>1</sup> Bit Y.A., Belenky Y.I. Production of wood fuel. St. Petersburg. 2001. (In Russian).

<sup>2</sup> Reimers N.F. Natural resources. Dictionary. - Moscow, 1990. (In Russian)

Doctor Sukhanov, at final felling in mature stands the volume of this waste material is about 30% of the total volume of the harvested wood.<sup>3</sup> It is therefore a significant potential biofuel feedstock.

However, it is also possible that an increased use of wood waste may give a financial boost to the forestry sector, which might have the additional impact of significantly increasing logging for pulp mills and wood production in general. Furthermore, it would be very difficult to control such an increase, and ensure that it does not trigger increased forest exploitation and forest degradation, especially in ecologically sensitive zones. There is also a risk that the establishment of additional industrial wood-based bioenergy plants will trigger overexploitation of natural forest resources, as this would be a cheaper and easier way to feed that industry than waste collection—especially in a country that faces very serious governance problems.<sup>4</sup>

If the use of wood is to be truly sustainable it must address ecological, economic and social issues (including gender aspects) and their interlinkages. With respect to ecological aspects, logging residues and firewood may be renewable resources, but one of the conditions of their use as a biofuel must be to return wood ash to forest soils, renewing their organic content. This is very rarely done by logging companies. Wood waste plays an important role in the health of forest ecosystems.

Greater attention should also be paid to using wastes from the pulp and paper industry. It also helps to solve the problem of waste disposal.

There is also a concern that larger biomass businesses may start exploiting the forests that communities depend upon, once a profitable business sector in wood-based bioenergy is created. This is potentially very dangerous for Russian forests and local communities. That's why we support only small-scale local bioenergy projects, not industrial-scale implementation.

Russia has a huge capacity to deliver sustainable biomass for local use. The current share of fuel wood is negligible. For example, only 12 out of 534 municipal boilers in the Leningrad region (only 2.2%) use fuel wood.<sup>5</sup> In contrast, in Sweden 15% of the total energy produced is obtained from fuel wood (although it is not yet clear if that is sustainable from social and environmental points of view).

Another potential problem is that industrial biomass plants tend to cause significant air contamination, triggering very serious health problems in local communities living near them. It would be very difficult to avoid these risks.

Clearly there is much to investigate and clarify in terms of the sustainable and local use of biomass energy in Russia. We will track these issues and collate the necessary data as it emerges, with a view to continued reporting on the development of this sector.

---

<sup>3</sup> Sukhanov V.S. Speech at the International Workshop 'Bioenergy 2004. Classification and standardization - from wood to energy production', St. Petersburg.15-16 June 2004. (In Russian).

<sup>4</sup> BBC. Battling Siberia's devastating illegal logging trade. 2009 <http://news.bbc.co.uk/2/hi/8376206.stm>

<sup>5</sup> Resolution of the Government of Leningrad region from 24.07.2003 "On the concept of balance of energy resources for utility boilers in Leningrad region until 2020." (In Russian).

Another potential problem relating to woody biomass in Russia concerns the export of timber and woody biomass. We could not find statistics on the export of woody biomass from the Asian part of Russia to South Korea and Japan. But there is useful information on the export of wood pellets. In 2012, Russia exported 850,000 tons of wood pellets. Most of these are exported to Western Europe, with more than 50% passing through St.Petersburg. In 2011, Russian's largest wood pellet producer VLK exported more than 220,000 tons of wood pellets to Europe. And it seems that Russian wood pellets producers are now planning to expand their market into other areas and countries, including Japan.<sup>6</sup>

In Japan, the number of boilers in timber processing plants has increased by 35% in the last five years. This increase has contributed to the reduction of wood wastes in the plants as well as contributing to the mitigation of climate change through avoided emissions from fossil fuels.<sup>7</sup> But if the increased use of biomass generally in Japan creates a significant demand for timber imports from Russia, then there is a risk of environmental and social impacts in Russia, as described above.

### **Box III: New biomass power plant in central Japan**

*For example, a ¥9billion (US\$83million) biomass power plant will be built in central Japan's Mie prefecture, by JFE Engineering's Tsu complex, with the company having a 35.2% stake in the project. The state-owned Development Bank of Japan will have a 25% share, providing around ¥1billion in project financing, on top of a ¥7billion loan from Japanese private-sector banks Hyakugo and Sumitomo Mitsui Trust. Japanese distribution company Nippon Express also joins the project with a 14.9% stake. Trading firms Hanwa and Daichu have a 10% stake each, with counterpart Okaya having the remaining 4.9%. Construction will start in November, with commercial operations scheduled to start in July 2016. The plant will use wood chip and palm kernel shell feedstock that will be imported mainly from Malaysia and Indonesia but also probably from Russia. Electricity produced will be supplied to JFE Engineering's power subsidiary, helping meet demand for around 43,900 households. Japan renewed its feed-in-tariff (FIT) scheme in July 2012, expanding renewable sources to include biomass, wind, geothermal and small-scale hydroelectric generation facilities, in addition to solar panels. Japan's biomass consumption for power generation for the first seven months of 2014 totaled 1.2million tons, up by 9.9% compared with the same period last year.*

**Source: Argus Media - <http://www.argusmedia.com/News/Article?id=930636>**

---

<sup>6</sup> An Analysis of Wood Pellets Market in Russia <http://www.wood-pellet-mill.com/wood-pellet-news/Russia-wood-pellet-manufacturing-market.html>

<sup>7</sup> Bioenergy [http://montrealprocess.org/Addressing\\_Global\\_Forest\\_Challenges/bioenergy.shtml](http://montrealprocess.org/Addressing_Global_Forest_Challenges/bioenergy.shtml)