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Policy forum: Challenges of forest governance: Biomass export from Leningrad oblast, North-West of Russia

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ABSTRACT

Russia accounts for approximately 20% of the world's forest cover. More than 59% of the total territory of the Russian Federation is classified as forest land. However, the forest sector contributes only 1.3% to Russian gross domestic product and the Russian forest industry accounts for less than 4% of the world's forest products trade. This paper analyzes the most significant challenges facing Russian forest management including example of wood chips export to the EU and will suggest specific policy proposals that could be made in order to improve the forest management and forest transportation in Russia. Russian forestry has a lot of challenges such as lack of proper forest infrastructure, inadequate forest fire protection, unqualified personnel and unclear legislation. Most of these challenges are linked to one another and solving one problem can lead to the solution of others. The improvement of Russian forest governance is difficult and hard for policy, but without significant changes in current Russian forest management practices, forest degradation in Russia will continue to increase. The degradation of Russian forests could lead to a loss of global resources in general.

1. Introduction

Two decades of political and economic reforms in the Russian Federation have demonstrated that change in the forestry sector is relatively slow, and the sector has had difficulty in adapting to changing market conditions and international requirements related to sustainable forest management. Moreover, the forest sector is not a priority for national economic policy. Consequently, Russia lacks a coordinated forest policy, and there is instability and uncertainty in legal regulations governing forestry practices and forest use (FAO, 2012). Per hectare income from forests is not large and, for example, biomass cannot compete with the fossil fuel industry. In Russia, income from 1 ha of forest land suitable for logging is around 5 euros, while in Western Europe it is in the region of 146 euros (WWF, 2011). The financial returns from each ha of forest land are 3–5 times higher in Finland than in Russia (LesOnline, 2016). In 2015, oil revenue in Russia was about 9044 billion rubles (~113 billion euros), while revenue from the wood working industry, and plywood and board materials was about 109 and 190 billion rubles (~1.3 and 2.3 billion euros) respectively (Federal State Statistics Service, 2016).

The mortality rates of forests is high in Russia. For example, in Leningrad Oblast it can reach 47% (Pisarenko et al., 2000; Sikkema et al., 2014). The share of dead trees equals mortality of between 29%

and 42% of the gross growth increment in the North West Russia (Shvidenko et al., 2008; Sikkema et al., 2014). Of about 1 million ha mortality annually, 0.8 million m³, 0.2 million m³ and 0.03 million m³ are due to unclear cutting, forest fire and forest pests, respectively. With such high mortality rates, monetary losses are many times higher than investment in forest protection (Government Program, 2010).

The aim of this study is to identify the main challenges of mobilization of forest resources in Russia. More specifically, the research questions considered in this study are: what are the most significant challenges facing the Russian forest industry, and what should be done from a policy side to increase the profitability of biomass mobilization? A case-study approach was chosen to determine the factors that affect woody biomass export from Leningrad Oblast to Europe.

2. Typical factors inhibiting the Russian forest industry development

Firstly, Russia has sophisticated forest legislation and often poor forest management. Frequently, even forest industry employees struggle to deal with Russian forest legislation. All active forest laws and industrial regulations are more than about 10,000 typewritten words. In summer of 2016, Greenpeace of Russia checked the results of continuous sanitary felling carried out in winter of 2015–2016 in

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Priozersky District, Leningrad Oblast (in blocks 47 and 48 Sosnovsky district forestry). Greenpeace concluded that the sanitary felling was not carried out in accordance with all rules in terms of pest control and maintenance of favourable sanitary condition of forests. Moreover, such sanitary felling creates favourable conditions for new beetles and drying spruce. The hypothesis of the Russian Greenpeace is that sanitary felling with such manner will accelerate the population of bark beetles and instigate a mass destruction of forests in Leningrad Oblast was fully justified (Greenpeace, 2016).

Secondly, lack of a well-developed forest infrastructure. The lack of forest roads is not a new problem, but it has not really been addressed adequately. In Russia as a whole, there are only 1.5 km of forest roads per 1000 ha of forest land, and in Siberia this number is much lower. For comparison, in Finland, more than 40 km of forest roads have been built per 1000 ha of forest land. Lack of roads often makes it impossible to reach locations of forest fires, thus hindering control of destructive fires (LesOnline, 2016).

Thirdly, fires are a large problem in Russian forests. The area affected by forest fires has increased. Fires on forest lands have been estimated as covering an area of approximately 5.0–5.5 million ha per year over the last 10 years, which leads to more than 2 million ha of forest destruction per year (Schepaschenko et al., 2015). In the Far East of Russia, more than 2900 ha of forest was burned in one day in June 2016 (mostly in the Amur Region) (Novay Gazeta, 2016).

Fourthly, undeveloped public participation, which creates mistrust and conflict between forest industry actors and rural villages, and lack of knowledge of modern research and practices of intensive wood production (Naumov et al., 2016). According to official statistics, the number of scientific specialists working in Russian forestry decreased five-fold during 2000–2010. In general, Russia has about 0.3 researchers working in the area of forestry per 1 million ha of forest. For comparison, the average number for the world and Europe is 2.4 and 14.2 respectively (Government Program, 2010).

Fifthly, the need to adopt modern technology in Russian forestry is greater than it was five years ago. Series production of Russian forest machinery and equipment for forest management ended in the 1980s and Russian forestry currently depends on the foreign forest machinery. Difficult economic conditions in Russia, and the currently (2015–2018) strained relationship (conflict in Ukraine etc.) between Russia and Western countries that are leaders in forest technology production, has affected Russian development of forest technology.

Finally, describing forest certification and the level of trust in Finland and Russia, Pappila (2013) suggests that a reputation for illegal logging and corruption, ineffective forest administration and legislation, affects trust in the Russian forest sector. In contrast, the forest industry in Finland has a better reputation and the level of trust is many times higher than in Russia.

As a result of such challenges, most companies are not interested in investments in silviculture and other forest improvement. Furthermore, most forest concession holders are small companies without long-term development or business strategies. These companies are mainly interested in short-term profit from roundwood sales. (Pappila, 2013; LesOnline, 2016; Sutherland and Huttunen, 2018).

3. Challenges of biomass transportation, example of Leningrad oblast

A typical example is the production of wood chips for export to Finland. Currently wood chips are transported by rail from the station at Tikhvin (Fig. 1) to Svetogorsk, where the product is checked, and crosses the Russian-Finnish border before being transported to the terminals of Finland. 4000 m³ of wood chips is transported per month i.e. four trains of eight wagons. The total turnover time of one batch delivery is 15 days, which includes loading in Tikhvin, delivery to Svetogorsk (4 days or more), unloading the product and return time of the empty load. There is potential for an increase in production

capacity, however no increase in supply is currently planned. Table 1 presents details of the wood-processing company in Tikhvin.

From the company's perspective, the logistics of biomass transport is problematic. Firstly, the distance from Tikhvin to Svetogorsk is about 400 km (Fig. 2). Secondly, tariffs for Russian railway usage are increasing every year. For example, the tariffs increased by 10% in 2015. Thirdly, there is a considerable distance between the forest concession area and Tikhvin railway station, where the wood is loaded. Maximum pick-up distance is 110 km and minimum distance is 40 km. On average, pick-up distance is about 70 km.

The lack of good quality roads poses a challenge and has an influence on price. In view of the prevailing road conditions, seasonality plays a large role in Russian forestry operations. In winter time there is huge production on the forest side, whereas in spring and summer production is many times lower. A proportion of 70% to 30% is often quoted. Some companies can even have 100% production in the winter time and zero production during other seasons. This seasonality is perceptible in the market prices; in winter the price is relatively low due to the large production, whereas in summer the price is high. In 2015, as a result of a very dry winter, a huge amount of products went onto the market, which was reflected by a considerable drop in the market price and a decline in demand in the following seasons and the forest market declined.

Use of road logistics only is not feasible due to the distance and the high cost of tariffs levied on large trucks using state roads. Since 2015, all Russian federal highways are covered by the Platon Electronic Toll Collection (ETC) system, which aims to facilitate and process the collection of toll charges offsetting damage caused to Russian federal highways by vehicles exceeding 12 tons of gross vehicle weight (<http://platon.ru/en/about/>). The introduction of this payment created considerable debate in Russia and many companies that organize the road transportation of Russian forest industry products have faced difficulties maintaining the profitability of their activities.

Railway transportation poses its own challenges. It has two types of tariff fixed by Russian Railway (JSC RZD), the monopoly state company that is responsible for managing rail infrastructure and operating freight and passenger train services. One tariff is for empty transports and the other for wagons with cargo. There is a big price difference between the two tariffs. The company in Tikhvin has to pay for the return of empty rolling stock from Finland. Cargo handling is not very efficient and wagons often spend considerable time waiting for train formation, which is time-consuming and labour-intensive, or waiting for access to single-track rail lines, which are very common in Russia. Thus, the average speed of freight trains in Russia is about 10–11 km/h (The Interpreter, 2016).

The use of available forestry equipment is not optimal. The Tikhvin district has significant additional potential for energy wood production, the utilization of which requires a simultaneous increase in industrial wood harvesting. The average productivity of harvesters and forwarders is higher in Finland than in Tikhvin in comparable conditions. Additionally, the productivity of log trucks from the Nordic countries is much higher than log trucks used by local companies (Goltsev et al., 2010). Re-allocation of chipping machinery is not applicable to the Leningrad region. In Finland, these machines are used at the end facility instead of along the forest roadside, which reduces the share of fossil energy input from chipping and greenhouse gas emissions (Sikkema et al., 2014).

4. Policy implications

In Russia, all areas of forest land, excluding defence lands and urban forests, belong to the State Forest Fund (“Gosudarstvennyi Lesnoy Fond”), which is a natural and economic object of federal property. The state defines and controls its policy through plans for forestry operations using regional level forest management and individual forest management units. Thus, all forest land is effectively under state

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