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Forest certification in Russia: development, current state and problems

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Abstract
The article analyzes the development of voluntary forest certification by the Forest Stewardship Council (FSC) system in Russia. The article is based on the review of diverse information sources, analysis of the reports of timber processing enterprises, personal observations during certification audits, discussions in workgroups, and information collected at training courses. We evaluated the present state of voluntary forest certification in Russia, analyzed non-compliances of the activity of Russian wood processing enterprises with the national standard FSC-STD-RUS-V6-1-2012 and indicated possible reasons for non-fulfillment of the requirements. We also presented problems in the development of forest certification in Russia and possible ways for its further development.
By the end of 2015, about 40 million hectares were certified, approximately 160 certificates were issued on forest management and 440 certificates on chain of custody. The 6th principle of the national forest management standard is the most problematic for logging enterprises. The principle concerns the requirements on the evaluation of impact of enterprise's activity on the environment. About 40% of non-compliances identified by auditors referred to the indicators of the 6th principle.
We argue that the main problems of forest certification development in Russia are contradictions between the principles and the criteria of FSC and the requirements of Russian forest legislation, retention of biodiversity and high conservation value forests, lack of economic incentives for introduction and implementation of certification requirements, and high cost of audits. Despite the existing problems, the certification remains one of the most important instruments for achieving sustainable forest management in Russia.

Keywords: Forest Stewardship Council; non-compliances with the standard requirements; FSC principles and criteria; sustainable forestry.

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Introduction

Forestry must be based on the principles of sustainable forest management. Depletion of natural resources, including forests, during human history has caused crises in many countries and influenced settlement of people, agriculture, industry and international trade, etc.

One of the first notes on the term "sustainability" concerning forest management can be found in a book by Hans Carl von Carlowitz (Carlowitz 1713), who urged land owners to keep and grow forest to provide long-term and inexhaustible use of its resources and asked them not to cut trees every year, so that trees have enough time to grow.

The term "sustainable forest management" began to be widely used in 1992 after the United Nations Conference on Environment and Development (UNCED). The following documents were published based on the results of the conference: "Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests" (General Assembly, 1992) and "Agenda 21" (Agenda 21, 1992). These documents specified the foundations of sustainable forest management. Then Ministerial Conference on the Protection of Forests in Europe (MCPFE) and the Food and Agriculture Organization (FAO) defined sustainable forest management as "the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems" (MCPFE, 2009).

The conferences and negotiations (Simula & Nussbaum 2005) resulted in the definition of international principles and criteria, observance of which would facilitate development of sustainable forest management. According to the principles of sustainable forest management, we should strive for such a way of conducting forestry in which a forest owner would not only earn an income but would also create conditions for maintenance of social sphere (hunting, fishing, gathering, tourism, employment of population) and would keep ecological values of forest areas. An important condition of sustainability is continuity of forestry processes in a long-term perspective that ensures the next generation to be able to use resources at a forest territory.

Abbreviations: FM – forest management; CoC – chain of custody; PEFC – The Programme for the Endorsement of Forest Certification; FSC – Forest Stewardship Council; SFI – Sustainable Forestry Initiative; CSA – Canadian Standard Association; ATFS – American Tree Farm System; CertFlor – Certification Florestal; EIA – Environmental Impact Assessment, HCVF – high conservation value forests, IFL – intact forest landscapes; SMF – sustainable forest management; CARs – corrective action requests; NGO – non-governmental organization.

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Forest certification is one of instruments that facilitates practical implementation of sustainable forest management (EEM, 2007; Marx & Cuypers 2011). It began to be broadly recognized at the beginning of 1990s. Introduction of forest certification systems was conductive to a new type of sustainable development institutions that differ from traditional processes of implementing policy (Cashore et al. 2004). The authors also reckon that forest certification is "one of the most innovative and startling institutional designs of the past 50 years". It helps to achieve the goals of protecting and managing biodiversity, fighting illegal harvesting and supporting monitoring and certification of carbon absorption in future (EEA, 2008).

Forest certification is a procedure which evaluates the quality of forest exploitation according to the criteria of the standard. If the quality corresponds to the standard, an organization managing forests might receive a certificate proving this. The certification usually focuses on a system of forest management at a certain forest area (FM, forest management) and a chain of custody of forest products to consumers (CoC, chain of custody).

Voluntary forest certification systems started to be developed both at international (FSC (Forest Stewardship Council), PEFC (The Programme for the Endorsement of Forest Certification) and national levels: SFI (Sustainable Forestry Initiative), CSA (Canadian Standard Association), ATFS (American Tree Farm System), CertFlor (Certification Florestal), etc. (Rupert 2000; Simula & Nussbaum 2005). Clark & Kozar (2011) compare three different certification systems (FSC, CSA and SFI) to determine which system meets the goals of sustainable forest management most effectively. They analyzed the literature sources and extracted the indicators required to meet the criteria of sustainable forest management (SFM). The authors came to the conclusion that the FSC certified forests achieve higher level of sustainable forest management than the CSA or SFI. However, they stress that field studies are necessary to collect social and ecological empirical data to check whether the conclusion is true. Rupert (2000) developed a matrix that included about 50 certification schemes and evaluated the credibility of these schemes with respect to various criteria and indicators. The criteria and indicators are based on those agreed by the CEPI Forestry Committee for assessing the credibility of different certification schemes (Rupert 2000). The characteristic feature of the FSC certification is that it is a multi-stakeholder third-party certification system, while other certification systems employ a form of self-regulation (Abbott & Snidal 2009). At present, the most widespread certification standards are PEFC (The Programme for the Endorsement of Forest Certification) and FSC (Forest Stewardship Council), which are compared in Table 1.

The area of forests certified by PEFC makes 268 million hectares in 34 countries, from which Canada, the USA, and Finland are leaders. The number of certificates on FM issued by PEFC system in the world as of November 2015 was 1,260. CoC by PEFC covers 65 countries (the leaders are France, Germany, and Great Britain) and about 10 thousand certificates were issued.

The area of forests certified by the FSC covers about 184 million hectares in 80 countries, from which Canada is in the first position, Russia has the second highest area certified by FSC, and the USA is in the third position. About 1,200 certificates on forest management were issued by the FSC system in the world as of November 2015. About 29,000 certificates were issued on CoC in 112 countries (the leaders are China, the USA, and Great Britain).

Both certification systems (PEFC and FSC) are used in Russia. As of November 2015, the area of forests certified by the PEFC was about 580,000 hectares (3 certificates) and 14 certificates were issued on CoC. At the same time about 40 million hectares in Russia were certified by the FSC system (about 113 certificates for 160 companies) and about 360 certificates were issued on CoC (for 440 companies).

In response to the acceleration of certification by the FSC system in Russia, our goal is to identify problems, which forest enterprises face in their effort to fulfill the requirements of the standard. We set out to address the following tasks:

− To investigate the development of the FSC certification in Russia and to identify the regions with the highest rate of certificates acquisition;
− To analyze the reports from certification bodies and to reveal the indicators, which are most difficult to be implemented in forest enterprises;
− To identify the main problems of certification development in Russia.

Such a research is expected to show the development of the FSC in Russia, to analyze the market of certified timber, and to point out at the problematic indicators while preparing for certification.

2. Material and methods

To study the certification development in Russia we reviewed a number of information sources. We studied the certification development since the beginning of its appearance in Russia from the view of the area of certified forests, the number of issued certificates on FM and CoC, and the number of suspended certificates.

The total area of forests in Russia is about 750 million hectares. The whole territory is divided into 83 regions with regional forest administration bodies. To evaluate the state of certification in the regions, we analyzed documents on

Table 1. Comparison of two international certification systems – PEFC and FSC.

Indicators as of November 2015	Certification on forest management (FM)		Certification on chain of custody (CoC)	
	PEFC	FSC	PEFC	FSC
Number of issued certificates	1257	1357	10625	29522
Number of countries with certification	34	80	65	112
Area of certified forests, million hectares	268	184	—	—
Three leader countries	Canada, USA, Finland	Canada, Russia, USA,	France, Germany, Great Britain	China, USA, Great Britain

forest planning of each region, which contained forest plans, forestry regulations, state reports, etc. We gathered the information on the total area of forests in a region, rented area of forests and certified area. This information allows identifying the leading regions of Russia with a perspective on further development of certification.

Investigation of non-compliances with the standard, which were identified by auditors during the evaluation of forest enterprises on the system of FM, was based on the analysis of the reports of certification bodies collected in the period from 2008 to 2015.

There is a national standard FSC-STD-RUS-V6-1-2012 in Russia (Standard, 2012). In 2013, more than 50 amendments were included into the standard. A number of indicators was excluded from the standard (version of 2012) and one new indicator (4.2.12) on the assessment of living and nutritional conditions of workers at forest logging works according to the requirements of instruction, was added (ILO, 1998). In addition, new guidelines on the use of radioactive wood and prohibition of certification of timber lands that are being used by correctional labor colonies were published. This information is available at the web site of the certification body "Forest certification" Limited Liability Company (LLC) (www.fcert.ru). The last version of the standard includes 10 principles, 56 criteria and 300 indicators. Auditors evaluate each indicator and reveal non-compliance in case of its non-fulfillment. The results of audits are publicly available at http://info.fsc.org.

We analyzed 135 certified companies, which represented 447 reports. Data were compiled in a form of a table with the enterprise name, location of forests, area of forests, date of an audit, type of an audit, certification body and identified non-compliances. This information was used to detect the indicators with the highest number of non-compliances with the FSC standard:

- review of literature on development of certification in the world and in Russia (about 130 sources);
- discussions with concerned parties, which contained 4 non-governmental organizations, about 50 representatives of forest administration bodies, about 70 representatives of the indigenous population, and about 200 specialists employed in forest enterprises;
- personal observations during field inspections of timber companies (personal participation in 57 audits on FM);
- discussions in working groups and seminars;
- information received at four training courses.

3. Results

Currently, 27 bodies of the FSC certification are accredited in the world, of which 16 bodies are active in the Russian Federation. The most active are "NEPCon, LLC", "Forest certification, LLC", and GFA Consulting GmbH. "NEPCon, LLC" is a representative of the US company Rainforest Alliance, and it manages more than 40% of certificates of Russian forest management enterprises. "Forest certification, LLC" is a domestic certification body (28% of certificates were issued). The third most important body is a German company called the GFA, which issued about 11% of certificates. About 70

auditors are involved in the certification bodies. The choice of a certification body depends on the cost of rendered services in the first place. However, as a matter of practice, the prestige of a certification body is also considered. Every year ASI (Accreditation Services International – a company that is in charge of accreditation of auditing companies in the FSC system) evaluates certification bodies on the quality of conducted audits and if there are any non-compliances, accreditation of the respective body can be suspended.

Note: For instance, in 2015 by the decision of ASI an auditing company Bureau Veritas was deprived of the right to sign new contracts on conducting certification, initial certification audits and to issue new FSC FM certificates (certificates on forest management) in Russia. Suspension of the rights of Bureau Veritas was caused by the fact that the company could not correct the most important non-compliances with the standards of accreditation in FSC system, revealed earlier (Report, 2014).

First, we present a graph of certification development of FM and CoC (Fig. 1), a summary table of the state of certification by regions of Russia (Table 2), a summary table of non-compliances revealed by auditors for each principle of the standard (Table 3) and a list of problems in certification development. As can be seen, the first FSC certificate in Russia on FM was granted in 2000.
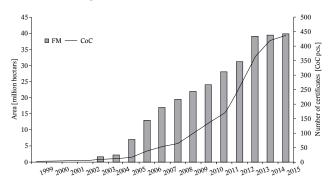

Fig. 1. Development of certification according to the FSC system in the Russian Federation.

The graph shows that an average growth rate of the certification of forest lands is 2 – 3 million hectares a year. The biggest rise was in 2013, when 8 million hectares were certified (25 certificates were issued on FM and about 80 certificates on CoC).

The territory of Russia is divided into 83 constituent territories with the total forest area of about 750 million hectares. The distribution of certification development over the Russian Federation shows that the certification of FM is present in 25 constituent territories and of CoC in 43 constituent territories (Table 2).

Table 2 shows that most certified forest areas are in the Irkutsk Region, the Arkhangelsk Region, and the Republic of Karelia. However, if we consider the ratio of certified forests to the total area of forest land (column F Table 2), the rank of regions will change – the first three places are occupied by the Republic of Karelia, the Primorye territory and the Vologda region. Leased forests are certified in the first place in Russia. Therefore, if we evaluate the relationship between the area of certified and non-certified rented forest lands (column G Table 2), then the Republic of Komi (more than 50% of rented lands), the Vologda region (48%)

Table 2. Analysis of forest management certification in the Russian regions (as of 2015).

No.	Region of Russia	A. f.l.*, mln. hectares	A. rent. *, thousand hectares	A. cert. *, thousand hectares	A. cert./ A. f.l.	A. cert./ A. rent.
A	B	C	D	E	F	G
1	Irkutsk region	69.40	19163	*7040[1]*	10.1	36.7
2	Arkhangelsk region	29.10	14513	*6447[2]*	22.2	44.4
3	Republic of Karelia	14.50	8646	*4080[3]*	*28.1[1]*	*47.2[3]*
4	Khabarovsk Territory	73.70	15560	3309	4.5	21.3
5	Komi republic	36.26	6094	3243	8.9	*53.2[1]*
6	Primorye Territory	11.83	8133	2878	*24.3[2]*	35.4
7	Krasnoyarsk Territory	87.60	16644	2691	3.1	16.2
8	Vologda Region	11.48	5540	2668	*23.3[3]*	*48.2[2]*
9	Leningrad Region	5.68	5300	1245	21.9	23.5
10	Perm Territory	11.98	6501	1006	8.4	15.5
11	Kirov Region	8.10	5824	569	7.0	9.8
12	Tver Region	4.88	2691	429	8.8	16.0
13	Tomsk Region	28.60	4093	363	1.3	8.9
14	Kostroma Region	4.60	1983	312	6.8	15.8
15	Republic of Buryatia	29.63	2730	252	0.8	9.2
16	Novgorod Region	3.90	922	240	6.2	26.0
17	Sverdlovsk Region	15.22	4774	162	1.1	3.4
18	Amur Region	30.52	4204	120	0.4	2.9
19	Omsk Region	5.92	375	77	1.3	20.6
20	Yaroslavl Region	1.52	1077	68	4.4	6.3
21	Ulyanovsk Region	1.03	771	58	5.6	7.5
22	Ryazan Region	0.88	738	56	6.4	7.5
23	Nizhni Novgorod Region	3.81	2509	37	1.0	1.5
24	Udmurt Republic	2.03	496	29	1.4	5.9
25	Vladimir Region	1.46	680	7	0.5	1.1

*A. f.l. – area of forest land; A. rent. – area of rented lands; A. cert. – area of certified forests;
[1,2,3] – indices point out top the three leaders by the corresponding indicators.

Table 3. Non-compliances with the requirements of the certification criteria.

	Characteristics of principles		Number of non-compliances		Problem indicators	
No.	Number of criteria	Number of indicators	Total	Per cent of the total number of indicators	Code*	Number of non-compliances
A	B	C	D	F	G	H
1	6	20	544	27.2	1.6.6	124
2	3	9	149	16.5	2.1.2	48
3	4	22	6	0.3	3.1.1	6
4	5	32	921	28.8	4.2.10	122
					4.2.11	135
5	6	27	480	17.8	5.6.5	108
					5.6.3	49
6	10	82	2747	33.5	6.7.1	97
					6.3.7	89
					6.2.12	88
					6.7.5	83
7	4	28	655	23.4	7.4.1	138
					7.1.1	65
8	5	28	930	33.2	8.5.1	155
					8.2.7	130
					8.2.8	122
9	4	25	746	29.8	9.2.1	72
					9.4.1	70
					9.3.13	67
10	9	27	0	0	0	0
Total	56	300	7178	23.9		

* See the description in Appendix.

and the Republic of Karelia (47%) occupy first positions. The geographical position of certified forests can be found at the official website of the Forest Stewardship Council

Next, we present our findings of non-compliances with the standard (Table 3). Most non-compliances (more than 40%) were detected for principle 6. The three leaders (column F Table 3) are principles 6, 8, and 9. The description of problematic indicators (i.e. those for which most non-compliances were revealed) is in Appendix.

In the first principle "Compliance with laws and FSC principles", most discrepancies were detected for indicator 1.6.6 (23% of the total amount of non-compliances for the indicators of the first principle). The requirement of the indicator is connected with teaching the workers of an enterprise the requirements for voluntary forest certification. . This indicator is often fulfilled only formally, i.e., training programs are developed, a report is made, signatures of participants are available, etc. However, a sample interview with the employees and inspection of work in the forest often reveal that required actions were not really taken, and the employees are not aware of the certification requirements.

In the second principle "Tenure and use rights and responsibilities", most non-compliances were detected for indicator 2.1.2 (32% of the total number of non-compliances for the indicators of the second principle). The standard requires that the borders of a timber land are marked in cartographic documents and in forestland. Forest inventory maps and maps describing planned forest management activities are the main cartographic documents of forest harvesting enterprises (Lukashevich & Shegelman 2012). In Russian forestry, timber land of a forest owner is divided into compartments. Borders of compartments must be cleared of vegetation and there must be posts at the corners of the compartments. While these requirements are typically fulfilled by the Russian lumbermen, a big number of non-compliances for this indicator are connected with the requirement to place banners with an enterprise contact information. This allows local population to contact an enterprise to inform about fires, illegal cutting, poaching, etc.

The third principle is connected with the evaluation of interaction of an enterprise with indigenous people. Most comments of auditors were on indicator 3.1.1 (3% of the total amount of revealed non-compliances for the indicators of the third principle). This indicator requires to identify the indigenous people living in a certified territory. The analysis of auditors' comments showed that enterprises do not identify indigenous people sufficiently. For instance, there are no meetings with stakeholders.

The highest number of non-compliances in the fourth principle "Community relations and worker's rights" was found for indicators 4.2.10 and 4.2.11 (13% and 15%, respectively, of the whole number of non-compliances for the indicators of the fourth principle). According to indicator 4.2.10, an employer must provide the employees with working clothes and individual protective equipment (IPE), which must satisfy the requirements of the Instruction of the International Labor Organization (ILO, 1998). Besides, workers are obliged to use the equipment in a proper way (indicator 4.2.11). The auditors identified a lot of non-compliances in connection with the absence of first aid kits and fire extinguishers at working places, or with their expired period of validity. A number of non-compliances concerns the fact that many enterprises use outsourcing of forest harvesting works. In such cases, implementing the required criteria is even more difficult as contractors or certificate holders are responsible for the compliance with the standard.

Most non-compliances in the fifth principle ("Benefits from the forest") were revealed for indicators 5.6.5 and 5.6.3 (23% and 10%, respectively, of the whole amount of non-compliances for the principle). Indicator 5.6.5 requires additional information for a technological map such as key habitats, measures for forest conservation and protection and the terms of their implementation, parking area for machinery, area for warehousing of industrial and domestic waste, activities for disposal and recycling of waste. As the analysis of reports showed, this requirement is often not implemented.

In the fifth principle, the noteworthy indicators are 5.6.2 and 5.6.3 that specify the annual harvest level to ensure sustainable use of forests in the long term. An enterprise works in the framework of a lease contract of a forest area and a forest development plan, in which the annual harvest level is given. However, this information is often overestimated during forest planning as there is no up-to-date information on forests in Russia (forest inventory is 15 – 20 years out-of-date). Besides, the established method of annual harvest level calculation does not consider losses of merchantable timber due to fires, forest diseases, outbreaks of phytophagous invertebrates and mass windfalls. An auditor must evaluate how an enterprise considers these factors in its activity.

The highest number of non-compliances was detected for principle 6 ("Environmental impact"), which requires that a certified enterprise has developed and introduced the system of Environmental Impact Assessment (EIA). An enterprise must identify the objects which are important from the point of ecology and which might be influenced by the activity of the enterprise. The extent of the possible impact and recommendations on its reduction must be indicated as well. About 2,800 non-compliances with the standard accounted for the sixth principle (35% of all the detected non-compliances).

Indicators 6.7.1, 6.7.5 are the most problematic (4% and 3%, respectively, of the whole amount of non-compliances for the indicators of the sixth principle). These indicators are connected with the breach of instructions on keeping combustive and lubricating materials and recycling of industrial and domestic waste. Many non-compliances were detected also for indicator 6.2.12 (3% of the whole amount of non-compliances for the indicators of the sixth principle), connected with the training of enterprise employees on the introduced EIA system.

The seventh principle of the standard is connected with the content of a forest management plan of an enterprise. Most non-compliances were identified for indicator 7.4.1 (21% of all non-compliances detected for the principle). The indicator demands that a summary of forest management plan without any confidential information must be accessible to the public (available on the Internet, at administration bodies, sent to the stakeholders, etc.).

A forest management certificate holder must conduct monitoring of his activity based on the indicators that are listed in the standard (principle 8). The organization should have a documented monitoring program, which describes parameters to be monitored (13 indicators are monitored). This information along with the forest management plan must be accessible to the public, which is rarely realized at domestic wood enterprises, and therefore non-compliances are detected for indicator 8.5.1 (17% of the whole amount of non-compliances for the indicators of the eighth principle).

In principle 8, two indicators on monitoring 8.2.7 and 8.2.8 need to be commented as these indicators were found quite problematic for the leaseholders (14% and 13%, respectively, of the whole amount of non-compliances for the indicators of the eighth principle). The indicators imply that an enterprise must collect and analyze basic information on population dynamics of main species of plants, animals and mushrooms that are present at a certified territory. The information on the dynamics of change in the quantity of protected species also needs to be collected and analyzed.

The main non-compliances in the ninth principle ("Maintenance of high conservation value forests") concerned the fact that an enterprise does not consult detection, conservation and management of HCVF (indicator 9.2.1) with stakeholders; it does not include the information on the extent to which HCVF are protected within the network of representative samples of existing ecosystems (indicator 9.3.13); and it does not conduct annual monitoring of HCVF (indicator 9.4.1) (10%, 9% and 9%, respectively, of all non-compliances detected for the principle).

Over the recent ten years the certification by the FSC system has been developing quickly and relatively evenly in Russia. Data analysis shows rapid growth of certification development in Russia. The increase in the certified area presented in this study is likely to be related to the effect of the EU regulations No. 995/2010 and the Revised Lacey Act that put liabilities on importers of forest goods to the markets of the USA and the EU for proving the legal origin of wood products. Importers (operators) are obliged to demand documentary proofs from suppliers that the bought products do not contain wood harvested with violations of the laws of the country from which the wood is exported.

Russia is in the second position in the world by the area of the forests certified by the FSC system. However, a ratio of the certified forest area to the area of managed timber lands provides a different perspective. For Russia the value of this indicator is 5.3, while, for example, for Canada it is 17, for the USA 4.3, for Sweden 39, etc.

A similar situation can also be seen inside Russia. In absolute numbers, the leading regions are the Irkutsk Region, the Arkhangelsk Region and the Republic of Karelia. In the relative terms, the Republic of Komi, the Vologda region and the Republic of Karelia occupy the first positions. Besides the area of certified forests, evaluation by the number of leaseholders is also demonstrative. About 13,000 lease contracts are for harvesting wood, while only 5 – 6% of them are certified. Practically all big enterprises have already certified their rented forests, whereas small and medium-sized enterprises are not interested in the certification procedures. This situation results in an obvious lack of the FSC certified wood in Russia.

Despite Russia's leading positions in certification on FM, the development of CoC is progressing slowly. Russia takes the 19th place by the number of CoC certificates. If we consider the ratio of the number of certificates on CoC to the area of certified forests, the position of Russia decreases to 33.

Since the FSC certification continues developing in Russia, there is a demand for auditors, and their number is expected to grow. Higher educational institutions introduced a subject that teaches the specific requirements of voluntary forest certification. Students get acquainted with certifica-

tion procedures and can be involved in the work of forest management enterprises as both certification auditors and trainees at audits.

We found that the majority of problems concerned the detection of HCVF, development of EIA, detection of key habitats, and detection and conservation of representative samples of existing ecosystems within the landscape.

The most problematic HCVF for certified lumbermen are intact forest landscapes (Greenpeace, 2014). This type of forests is not considered in the system of Russian forestry and is leased out for harvesting. To fulfill the requirements of the FSC standard, certified leaseholders must voluntarily resign their exploitation of such forests. In fact, forest owners who excluded the HCVF from their management are less competitive than forest owners who did not do this. At the same time, there is no compensation mechanism supporting forest owners to treat HCVF in line with the standard.

Environmental impact assessment is a new and a difficult task for most of leaseholders. This requirement is not included in the Russian forest legislation and lumbermen typically need to consult experts about how to comply with the standard`s requirements.

The organization is expected to establish a network of representative samples of existing eco-systems within the forest area to be certified, which can provide the preservation of the diversity of landscapes, ecosystems, habitat types and local flora and fauna, what also requires experts` support.

Identification and conservation of key habitats is another problem for forest users, mainly because of contradictions between the FSC standard and the Russian forest legislation. Specifically, abandonment of key habitats during clear-cut harvesting is a violation of wood harvesting rules in Russia.

The costs of fulfillment implementation of the FSC standard also hamper the voluntary forest certification. Practically all big timber processing companies of Russia certified their forests, however, for other lumbermen the procedure of certification still remains expensive, and this can drive small enterprises out of the market. This problem can be faced via group certification that unites small leaseholders.

Not only leaseholders of forest areas but also forest owners must participate in the development of certification. A Part of the certification requirements, especially those on the detection of HCVF or the analysis of representativeness of rare eco-systems in a forest area, could be carried out at the expense of the state. This would reduce the expenses on certification, which could be supportive mainly to small enterprises.

There is also a problem with increasing shortage of timber for certified products. In order to raise economic security of a region, it is necessary to analyze the perspectives of development of certification within the region from the following viewpoints: the area of certified forests and volumes of their harvesting, the area of non-rented areas and areas that provide opportunities for harvesting, list of timber processing enterprises, and review of existing and potential consumers. This information will allow to evaluate the progress of certified production in the regions; it will also allow improving economic security of the region by developing recommendations on optimization of supplies between manufacturers and consumers of certified products.

4. Conclusions

Despite the existing problems of development of certification in Russia, certification remains one of the instruments for achieving sustainable forest management, which means carrying out forestry activities with minimization of environmental impact, keeping an opportunity to use all the good that the forests provide to the present-day generations for future generations.

On the one hand, voluntary forest certification favors the growth of ecological (conservation of biodiversity, rational use of forest resources, etc.) and social responsibility of forest users (preservation and security of traditional rights of population). At the same time, certification also supports the economic efficiency. Year by year the demand on certified products is increasing, especially at ecologically-sensitive markets of the USA and Europe. As a result of the survey of the certified companies, the following positive moments of having a certificate were noted: improvement of company's reputation, access to new clients and markets, rise in sale to existing clients, and retention of the market share.

Thus, voluntary forest certification became a quite important factor, defining economic stability of forest exploitation of the country's timber processing regions. In order to increase economic security of a region against the problems with export of forest production it is necessary to develop voluntary forest certification by means of a closer interaction in the field of forest exploitation among the state, business organizations and the public.

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Appendix

The most problematic indicators of the FSC national standard in Russia

Problematic indicator	Number of revealed non-compliances	Percent of all non-compliances
1.6.6. The requirements of the Russian National FSC Standard shall be explained to staff.	124	23
2.1.2. The boundaries of the area shall be mapped and can be identified on site.	48	32
4.2.10. Forest workers shall be provided with personal protective equipment.	122	13
4.2.11. The requirements of health and safety regulations, including the use of relevant tools and machines and work clothing and personal protective equipment shall be adhered to by the staff.	135	15
5.6.3. The annual harvest level shall ensure the sustainable use in the long-term.	49	10
5.6.5. The technological map shall contain at least the following information: location, including district forest management unit, forest group, numbers of blocks, sections, harvest areas; type of management operation (use); type and technique of harvesting or type of resource harvested; grade of harvested timber; size of harvest area; pre-harvest stand composition; area at which young growth shall be retained; AAC for the leased area in terms of timber and/or other forest resources; indication which trees shall and shall not be harvested; timelines for timber harvesting and removal from forest; non-exploitable areas, other retention stands/stand elements; forest protection measures and their timelines; method for clearing the harvest area; peculiarities of harvesting techniques; forest regeneration activities; bays, industrial and household waste disposal sites; waste removal/disposal operations.	108	23
6.2.12. The staff shall be aware of materials about rare, threatened and endangered species of plants, animals and fungi and the list of game species occurring within the certified forest area, their typical key habitats as well as measures for protecting these species.	88	3
6.7.1. Chemicals, their containers, liquid and solid nonorganic wastes, including fuel, oil and highly inflammable liquids shall be stored and managed in line with applicable administrative rules and regulations.	97	4
6.7.5. Industrial and household waste shall be managed in consistency with applicable regulations.	83	3
7.4.1. The primary elements of the forest management plan except confidential information shall be available to public.	138	21
8.2.7. Information permitting to assess the composition of flora and fauna and its changes in relation with the forest management shall be collected and analyzed.	130	14
8.2.8. Information on changes in the populations of rare, threatened and endangered species of plants, animals and fungi shall be collected and analyzed.	122	13
8.5.1. A summary of the monitoring results of parameters, except confidential information, shall be available to the public.	155	17
9.2.1. The organization shall conduct consultations with a wide range of stakeholders to identify, protect and manage HCVF.	72	10
9.3.13. The Public Summary of the forest management plan shall contain information of the extent to which HCVF are protected within the network of representative samples of existing ecosystems.	67	9
9.4.1. The effectiveness of the measures employed to maintain or enhance the characteristics of HCVF shall be determined on the basis of findings of annual monitoring.	70	9