

Dissertationes Forestales 95

Institutions and forest tenure in the Russian forest policy

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Academic dissertation

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Forestry and the forest sector as a whole mirrors the political, economic and social changes that take place in a society. In Russia, the change of formal legal institutions in the forest sector has been fast since the beginning of 1990s. Since then, the Russian forest sector has been integrated more closely to the international market. The recognition of forests' role as the main renewable natural resource has fuelled increasing political and administrative effort on the development of the sector.

This study attempts to shed light on the reasons why the Russian forest policy has failed to effectively improve forest sector development. The arrangement of property rights to forest resources, and the institutional arrangement of forest tenure form the core of analysis. For this purpose, the framework of institutional analysis (IAD) is adapted to the organisation of forest tenure in Russia. In analysis a particular attention is paid to the content and enforcement of the *Forest Code of 2007*.

Institutions are the rules of game in a society and by structuring incentives they facilitate and constrain the economic sustainability of forestry. Formal rules can be created rapidly, whereas informal norms constrain the enforcement of formal rules. Property rights are key institutions facilitating the actions of economic actors. Property rights are referred to as a bundle of rights in relation to a certain property. The models of path-dependency and transaction costs are used to analyse and explain the institutional change. The materials used in this study consist of legislation, academic and professional papers, statistics collected from public sources as well as primary data collected.

Despite federal polity, the decision-making is highly centralised in Russia. The joint governance of forest resources between the federal and regional governments has been one of the focal issues of the forest policy in post-Soviet Russia. Results reveal that there are constant struggles to achieve economic sustainability in forestry. Obscure property rights to forests have worked against economically, socially and ecologically sustainable forestry. The effect of formal institutional changes on the everyday forestry operations has remained low. This is partly due to the strong informal institutions and weak enforcement of formal rules.

Historical courses of developments, like regional over cuttings, centralised forest administration, the separation of forestry and forest industries and the lack of market information are currently affecting available forest policy options in relation to management and use of forest resources. The lack of transparent allocation of forest resources has affected the transaction costs. This weakens the economic result of both the owner and tenant. Financing of forestry has relied on the business operations carried out by forest administration. Despite the past and previous uncertainties and problems of the Russian forest sector, the enterprise managers participating in the questionnaire viewed the future development positive.

The comparison between property rights to forests between Russia and Canadian British Columbia (BC) revealed differences in the governance systems of public forest lands. The long experiences of BC, such as the performance based renewal of tenure rights, are not fully utilised in Russian legislation. In order to improve the enforcement of new rules, the establishment of economic incentives should be considered in relations between, first, the state and private tenure holder, and second, the central and regional governments.

Based on the findings three main trends of the Russian forest policy can be identified: first, an administrative decentralisation of forest management, second, the increasing share of private long-term tenures in management and use of forests, and third,

the consolidation of the private forest industries, which is facilitated by the institutional changes introduced largely by the *Forest Code of 2007* and due re-distribution of property rights to forests. Presumably the transition in the Russian forest sector that is the establishment of new forest management regime will take years.

Keywords: Decentralisation, Federalism, Path-dependence, Property rights, Forestry

Torniainen, T. 2009. Instituutiot ja metsien hallintaoikeudet Venäjän metsäpolitiikassa. (Institutions and forest tenure in the Russian forest policy.) *Dissertationes Forestales* 95. 64 s. Saatavissa osoitteesta <http://www.metla.fi/dissertationes/df95.htm>

Metsätalous ja metsäsektori yleensä heijastelevat yhteiskunnan poliittisia, taloudellisia ja sosiaalisia muutoksia. 1990-luvun alusta lähtien Venäjän metsäsektorin institutionaalinen muutos on nopeaa. Venäjän metsäsektori on integroitunut läheisemmin kansainvälisiin markkinoihin. Kansallisella tasolla metsien rooli tärkeimpänä uusiutuvana luonnonvarana on tiedostettu. Tämä on lisännyt poliittisia ja hallinnollisia ponnistuksia sektorin kehittämiseksi.

Tämä tutkimus pyrkii valaisemaan syitä miksi metsäpolitiikka Venäjällä ei ole kyennyt tehokkaasti ja määrätietoisesti tukemaan metsäsektorin kehitystä. Analyysi keskittyy erityisesti metsiin liittyviin omistussuhteisiin ja metsien hallinnan ja käytön järjestelyyn. Tähän tarkoitukseen on sovellettu institutionaalisen analyysin viitekehystä (framework of institutional analysis, IAD). Analyysissa kiinnitetään erityistä huomioita vuoden 2007 alusta voimaan tulleen Venäjän federaation metsälain sisältöön ja toimeenpanoon.

Instituutiot, jotka tässä tutkimuksessa määritetään uuden institutionaalisen taloustieteen (New institutional economics) mukaisesti pelisäännöiksi, vaikuttavat kannustimien ja rajoitteiden kautta metsätalouden taloudelliseen kestävytyteen. Muodolliset viralliset instituutiot, kuten lait, voidaan luoda tai muuttaa lyhyessä ajassa kun taas hitaammin muuttuvat epäviralliset normit rajoittavat edellisten toimeenpanoa ja vaikutusta. Omistusoikeudet keskeisinä taloudellisinä instituutioina ohjaavat taloudellisten toimijoiden käytöstä. Omistusoikeudet mielletään erilaisiksi nipuiksi oikeuksia, jotka liittyvät tiettyyn omaisuuteen. Polkuriippuvaisuus- ja transaktiokustannusmalleja hyödynnetään selitettäessä institutionaalisten muutosten syitä. Aineistona on käytetty Venäjän federaation metsälakeja, akateemista ja ammattikirjallisuutta sekä julkisia ja itse kerättyjä tilastoja

Federatiivisesta valtiomuodosta huolimatta päätöksenteko on erittäin keskittynyttä Venäjällä. Metsien jaettu hallintovastuu keskushallinnon ja alueiden kesken on ollut metsäpolitiikan keskeisiä teemoja. Tutkimus osoittaa, että taloudellisesti kestävä metsätalouden harjoittaminen on ollut erittäin vaikeaa. Heikosti määritellyt omistussuhteet ovat heikentäneet mahdollisuuksia taloudellisesti sosiaalisesti ja ekologisesti kestävä metsätalouden saavuttamiseksi. Muodollisten instituutioiden vaikutus metsänhoitotoimenpiteiden harjoittamiseen on jäänyt vähäiseksi. Tämä on johtunut lakien ja säästöjen heikosta toteutuksesta sekä epävirallisten instituutioiden vahvasta vaikutuksesta.

Historialliset kehityssuuntaukset kuten alueelliset ylihakkuut, metsätalouden ja –teollisuuden erillisuus, keskitetty metsähallinto sekä markkinatiedon puute rajoittavat metsäpolitiikan vaihtoehtoja. Metsänvuokraukseen kuuluvien talousmetsien jakoprosessien heikko läpinäkyvyys on lisännyt yritysten transaktiokustannuksia. Tämä on vaikuttanut heikentävästi niin omistajan kuin vuokralaisen taloudellista tulosta. Metsätalouden julkinen rahoitus on perustunut metsähallinnon omaan liiketoimintaan. Metsäsektorin ongelmista ja epävarmuudesta huolimatta kyselyyn osallistuneet puunkorjuuyritysten johtajat suhtautuivat yrityksensä tulevaisuuteen positiivisesti.

Vertailu Venäjän ja Brittiläisen Kolumbian kesken paljasti eroja julkisomisteisten metsävarojen hallinnassa. Brittiläisen Kolumbian pitkäaikaista kokemusta metsien hallintaoikeuksien järjestelystä, kuten vuokralaisen toimintaan perustuva metsän käyttöoikeuden uusinta, ei ole täysimääräisesti hyödynnetty Venäjän metsälaisissa. Uusien lakien ja ohjeistojen täytäntöönpanon tehostamiseksi tulisi harkita taloudellisten

kannustimien luomista sekä valtion ja yksityisen metsävuokralaisen että keskus- ja paikallishallintojen yhteistyön tehostamiseksi.

Tulosten perusteella voidaan Venäjän metsäpolitiikassa havaita kolme keskeistä kehityssuuntaa: metsien hallinnan hajauttaminen, yksityisen sektorin roolin kasvu metsien käytössä ja hallinnassa sekä metsäteollisuuden keskittyminen. Metsäteollisuuden muutosta edesauttaa metsälain käynnistämä metsien hallintasuhteiden uusjako. Tulosten perusteella voidaan arvioida, että Venäjän uuden metsien hallintajärjestelmän toimeenpano kestää useita vuosia.

Avainsanat: Vallan hajauttaminen, Federalismi, Polkuriippuvaisuus, Omistusoikeudet, Metsätalous

Preface

This doctoral dissertation is the result of work consisting of five closely interrelated papers. This study saw its beginning in the spring 2004 when Professor Olli Saastamoinen asked me to join his then new four year research project "Forest policy, politics and forest programmes in Russia". The major part of the work was carried out within the project.

The themes studied in the project felt to some extent familiar, since I have had first hand contacts to Russian forestry since the mid 90s when I was working in the Russian Karelia forests as student. Later on, I have gained professional experience from various aspects of cooperation with Russian institutions, such as the development of educational programs in the field of forest economics, designing continuing education courses, and coordinating several educational and development projects within the Finnish-Russian Forest Development programme in the Ministry of Agriculture and Forestry. This work has given me numerous opportunities to work directly with research and education institutions, administrative bodies as well as private companies working in and with the Russian forest sector. I have also had concluded personal contacts and made friends with many highly skilled and knowledgeable Russian experts. This has helped me as a foreigner to better understand not only forestry and forest policy, but also the aspects of everyday life in Russia and the significant transformation of the country has been going through during the last two decades. These personal yet strictly narrow experiences form an integral background for this dissertation by affecting how I see and interpret the results of the scientific surveys. As foreigner I can never fully understand, but hopefully I can provide some alternative views from outside that give new and fresh angles to known problems and questions. I hope that apart from academic merit this could be the added value of my dissertation.

This study focused on forest policy in the Russian Federation. The federal level and national policies were chosen as starting points of this study because that was the main forum where policies were formulated during the study period. Russian forest policy offered a challenging but also rewarding and ever-changing subject for analysis. Turbulent policies produced over twenty Forest Code drafts (three of them are analysed in Article I) before finally adopted at the end of 2006. The studied period ends by the end of 2008. However, the forest policy process studied continues its evolution. At that time, the *Forest Code* has been in force almost two years, yet there are numerous open questions related to the adoption of subordinate federal and regional normative and the enforcement of the rules. Also, several amendments have already been introduced and new ones will be introduced in rapid pace. The nature of the new forest management regime adopted is only beginning to take shape. From this point of view some of the results may already turn out obsolete that often is the case in studies focusing on current policy matters. However, I do believe that by identifying the elementary institutions regulating forest policy-making in Russia (and previously in the Soviet Union) this study despite its topicality also is able to present long-term academic staying power.

There are numerous people who have contributed one way or another to this dissertation work. Even if my memory does not serve me sufficiently here, I would like to express my gratitude to the following authors, colleagues and friends.

The leader of the project was Professor Olli Saastamoinen from the Faculty of forest sciences of the University of Joensuu. Other partners of the project were the All-Russian Institute for Continuous Education in Forestry represented by Professor Anatoly P. Petrov and researcher Natalia Bulygina from the All-Russian Institute for Continuous Education in Forestry (ARICEF), and Professor Vladimir N. Petrov from the St. Petersburg State Forest

Technical Academy. The four-year project carried out between 2004 and 2008 was financed by the Finnish Ministry of Agriculture and Forestry.

The academic dissertation work carried out within the project was supervised by professor Saastamoinen as well as by Professor and Academician Anatoly P. Petrov from ARICEF.

The project also was part of the consortium "Towards progressive forest sector in Northwest Russia", coordinated by Professor Timo Karjalainen from the Finnish Forest Research Institute, Metla. The consortium consisted of four projects covering various aspects of the Russian forest sector, including forest policy led by Professor Saastamoinen, forestry and wood procurement led by Professor Timo Karjalainen, timber trade led first by Dr. Anne Toppinen, and later by Dr. Jari Viitanen, as well as investments and economic impacts of the forest sector development by Professor Pekka Ollonqvist. The projects received contributions from over twenty Finnish and Russian scientists. The projects of the consortium were financed jointly by the Finnish Academy of Science via the research programme "Muuttuva Venäjä" (Changing Russia) 2004-2007 and the Ministry of Agriculture and Forestry, as well as Finnish and Russian project partners.

I also would like to present special thanks to Ph.D. Olga Mashkina for her invaluable contribution to paper that is part of this dissertation.

Dr. Riitta Hänninen from Metla helped me enormously by commenting various articles as well as the introduction part of this dissertation. The following specialists helped me by providing their academic professionalism, experiences and views and took the time to comment various drafts of articles: Professor and director Markku Kivinen from Aleksanteri-Instituutti, Dr. Pertti Veijola from Metsäbotnia, Mr. Jim Howard and Ph.D. Susanna Laaksonen-Graig from the Ministry of Forest and Range of the British Columbia, and Professor Jussi Uusivuori, Dr. Yuri Gerasimov and researcher Timo Leinonen from Metla. My thanks also go to Mrs. Sari Karvinen from Metla who tirelessly dig out data and other information needed for analyses.

In relation to dissertation oriented studies I got support from the graduate school in forest sciences of the Universities of Joensuu and Helsinki as well as the graduate school for Russian and East European studies coordinated by Aleksanteri Institute.

I worked almost four years as external researcher in the traditional "Metsätalo" of the Metla. Besides physical facilities necessary for efficient work, Metla as institute but also as community of people supported me with high-class professionalism in forest policy and economics, and equally importantly, provided a social community that counterbalanced academic pressures.

Finally, I like to express my gratitude to my family, my wife Taina as well as Pietari, Siiri and Kerttu whose presence kept my feet on the ground and whose everyday support, encouragement and inspiration helped me to finalise this work.

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Olli Saastamoinen and Tatu Torniainen developed the research idea for I, II, III and V and the research idea of IV was developed by Tatu Torniainen and Olga Mashkina. Tatu Torniainen specified the theoretical framework, analysed and collected most of the material and had the main responsibility in the writing process of all the articles, except IV, which was co-written by Tatu Torniainen and Olga Mashkina. Olli Saastamoinen contributed the writing processes of I, II, III and V. Anatoly Petrov contributed to the writing process of I. Vladimir Petrov contributed to the writing process of III and data collection for IV. Olga Mashkina carried out the calculation of results of IV and Tatu Torniainen was responsible for data analysis.

INTRODUCTION

Informal institutions challenge the enforcement of forest policy in Russia

Forestry and the forest sector as a whole mirrors the political, economic and social changes that take place in society. Although numerous organisational changes characterised the Soviet forestry, the change of formal legal institutions in the forest sector has been fast in the Russian Federation (later Russia) since the beginning of 1990s. During the development processes, the Russian forest sector has been integrated more closely to the international market. There are nevertheless numerous institutional issues to be solved that hinder the establishment of sustainable management and utilisation of forest resources.

At the global level, the management and use of Russian forest have significant ecological impacts on biodiversity and climate change. The domestic economic importance has always been vital during centuries and along with the development of forest industries, the economic role of forests has been increasing since early 20th Century. Russia takes part in international forums, for example under the United Nations, the FAO/ECE and the Ministerial Conference on the Protection of Forests in Europe (MCPFE) at European level. Russia also is committed to forest related conventions such as the Convention on Biological Diversity (CBD) and the Kyoto Protocol. Besides the formal conventions, the increasing economic integration of the Russian forest sector to world markets creates constantly growing interdependences: the changes taking place in Russian forest policy are reverberated to other countries via international relations and trade, and vice versa. Through the international relations but also due to domestic policy development the goals of economically, ecologically and socially sustainable forestry have been accepted. These principles are visible already in 1993 in the *Basic Principles of Forest Legislation*, and further strengthened in the *Forest Code of the Russian Federation of 1997* as well as in the latest *Forest Code of the Russian Federation*, which was adopted by the State Duma on November 8th and became effective on January 1st, 2007 and referred here as the *Forest Code of 2007*.

The recognition of forests' role as the main renewable natural resource has fuelled increasing political and administrative effort on the development of the sector. In spite of this, the Russian forest sector has not been able to contribute to the wealth and well-being of the country as could be anticipated. The main obstacles of the forest sector development include the lack of unified and cross-sectoral national forest policy, the ambiguity of the rules regulating forest use, the under-developed regional and local markets for timber, the low profitability of timber harvesting, long distances, out-dated technology of forestry and timber production, underdeveloped infrastructure supporting forestry, in particular, spare road network and high costs of road construction as well as the insufficient level of forest regeneration and the neglect of silviculture (e.g., Burdin et al. 1998; Dudarev et al. 2002; Kozhuhov 2001; Krott et al. 2000; Petrov 1997; Petrov 2004; Pisarenko and Strakhov 2004; Tatsyun 2003) as well as the ambiguities of policy making, forest legislation and property rights to forest resources (World Bank 1997; Lovtsova 2001; Nordberg 2007; Moiseyev 2008). Moreover, the International Institute for Applied Analysis (IIASA) has systemised and analysed the problems of transition economy and in particular the institutional framework regulating the formation of markets in the forest sector in Russia, including the forest legislation and the development of property rights, the main conclusion

being that without significant reforms of the existing institutions there are strictly limited possibilities to achieve sustainability in the forest sector (e.g., Carlsson *et al.* 2000; Nilsson, 2005; Nilsson and Shvidenko 1998; Nystén-Haarala 2001; Pappila, 1999) (A collection publications of the IIASA-program "Institutions and the Emergence of Markets — Transition in the Russian Forest Sector" can be found from www.didaktekon.se/mats/ii-publ.htm). Olsson (2008) augments that despite the progress the transition process at the level of society as well as in the forest sector may still take years if not decades. These technical and more importantly socio-economic issues also have various negative impacts on forests' ecological conditions undermining the ecological sustainability of forestry.

The myriad of economic, social and technical problems reflect the underlying institutional inconsistencies. As result, the recovery of the forest sector after the collapse of production in the beginning of the 1990s has been slow. Although the formal legal changes have been fast in the forest sector, there has been much less policy outcomes and impact at grass-root level forestry; in the practical management and use of forest resources. Despite the vast body of academic work carried out, there are little if any present studies that analyse forest tenure and the due development of property rights to forests within the current institutional setting established along with the adoption of the *Forest Code of 2007*.

The lack of coherent national forest policy constitutes one of the core problems of forestry. Moiseyev (2002; 2008) argued that the absence of policy integrating both forestry and forest industry policies has hampered the development of the sector as a whole. The situation in the forest sector was paid attention at the highest political level. In his speech to the newly established Federal Assembly in 2002, President Putin declared that

the existing situation (in the forest sector) is disorganised and inconsistent, and do not support industrial activities", and further that "the state must create conditions for economic freedom, regulate forest market and create clear normative basis for forestry and, support establishment of modern infrastructure" (Putin 2002).

This statement can be viewed as the starting point for the most recent forest policy process that yielded a new forest management regime in Russia. With the defined forest sector strategy lacking, the main goals of the forest policy can be found now from the new *Forest Code of 2007*. The law drafting process itself became the focal forum of forest policy debate. Already in 2003, Shuvajev and Gavriliyeva (2003) stated that the main goal of the preparation of the new code was the clarification of property rights: the delineation of authority between the levels of administration and the improvement of contractual relationships between the state and the private forest industries. The realisation of these goals can be now identified as the decentralisation of forest management as well as the renewal of the forest tenure system.

The intention of the *Forest Code of 2007* is to establish favourable conditions for investments in wood processing. The main goal in terms of forest management is to increase the acquisition of timber. The average yield of timber per hectare in Russia accounts for less than one cubic meter per hectare, whereas the goal is to double this figure (Rosleskhoz 2007). Consequently, a lot of effort has been put on the development of the forest tenure system, namely the long-term forest lease. The traditional and fundamental categorisation of forests also was to some extent reformed: forests are now divided into commercial forests, protection forests and reserve forests instead of the former three-group categorisation consisting of forest areas allocated to commercial, conservation and protective purposes. According to the new system, cuttings are concentrated on commercial

forests. However, selective cuttings also are allowed in some protected forest lands depending primarily on the purpose of protection. The rest of forests are preserved as set-aside reserves for the time being. The Code strongly counterpoints the development of forest industries and forest resources' role as raw material. These principles of the *Forest Code* lay the basis for the forest policy as well as for forest sector development in Russia, and as such, they also form the major background for the analysis in this study.

Russian forests have traditionally played a significant role not only at national but even more so at local and regional economies. The forest sector is the backbone of local economies particularly in Northwest Russia and many rural communities are solely dependent on forests and forestry. It must be noted however that there are significant differences in the role played by the forest sector in regional economies. Traditionally the forest sector has performed strongest in Northwest Russia, in parts of Siberia as well as in the Russian Far East. Northwest Russia is referred here to the northernmost part of the European Russia bordering on Finland, Baltic States in west, Arctic Ocean in north and Urals in east. Administratively the federal district of Northwest Russia consists of Republics of Komi and Karelia, regions (*oblast*) of Murmansk, Archangel, Leningrad, Vologda, Novgorod, Pskov and Kaliningrad as well as the federal city of St. Petersburg.

The huge forest resources of the Russian Federation, their important international role as well as regional and local significance stress the need for improved understanding of forest policy in Russia. The present study tries to shed light on the reasons, why forest policy in Russia has failed to effectively improve the forest sector development. One of the most important underlying reasons is assumed to be found from the arrangements of property rights to forests. This also is the major hypothesis of the study.

Property rights regulate forests and forest related commercial activities. The institutional balancing of the rights and obligations in relation to forests has formed the central essence of forest policy in Russia since the beginning of the 1990s. The arrangement of property rights, however, has met several challenges related to, for instance, the disintegration of the Russian forest sector and the central role of informal institutions in the Russian society. Administratively, forestry is part of the management of natural resources whereas forest industries belong to industry block. The Russian forest sector is traditionally divided in two branches; forestry referring to various operations of forest resources' management, as well as forest industries encompassing industrial wood harvesting and mechanical and chemical processing of timber. The study focuses on the arrangement of property rights, the role of informal institutions affecting the formation and implementation of forest policy in Russia.

Property rights are key institutions that establish the base for and constrain any economic activity. Institutions here refer to the way they are understood in new institutional economics (NIE). Institutions are not to be confused with organisations: institutions are the rules of the game and organisations are the players (North 1990). The property rights to forests, which in this study are expressed as the rights and obligations in relation to forest resources, strongly affect the organisation of sustainable management and use of forests. The apportionment of rights and obligations matters due to its direct impacts on the distribution of benefits and costs between the actors. In the forest sector, property rights play even more complex role than in other economic sectors because of close and sometimes contradicting interrelation of economic, social and ecological issues. Property rights as part of institutional framework regulate actors' behaviour, and the vice versa: a particular property right regime is not constant and (both economic and political) actors with their preferences are the driving force of institutional change. Actors participating

collective-choice actions may modify and change institutions (Kiser and Ostrom 1982). Thus, institutional change primarily reflects the changes in values and preferences in a society, while apparently the dramatic re-structuring of the foundations of the whole society has the primary locomotive also in value changes in the post-Soviet Russia (Kivinen 2000).

As a point of comparison the property right to forest resources particularly in relation to the arrangement of private forest tenures in the British Columbia (BC) are analysed. The BC experiences are of particular interest since Russian scholars of forestry have studied, and arguably adopted some principles in the new legislation (Korovin 1995; Moiseyev and Burdin 2004; Petrov 2005).

Understanding the past is the key to the evaluation of the present situation. The key assumption is that previous decisions and development paths affect by constraining the current available policy options. Likewise, analyses of previous developments and current institutional settings provide foresight of the future. This comprises the essence of path-dependency. In other words; the identification the structural mechanisms that produced the current outcomes is essential for institutional analysis (Ostrom 2005). Russia has long traditions in regulation, management and use of forest resources that go back to 18th Century (Redko and Redko 2002). Because of the long history, the cumulative and incremental nature of decision-making has its implications to the present situation. This is to say that history matters: previous decisions taken to some extent determine and constrain the current available options. The identification and analysis of these path-dependencies also helps to identify the current available options of decision-making. The present study analyses these path-dependencies that help to identify the current available forest policy options.

Basic assumptions of the study

The present study tries to shed light on the reasons, why forest policy in Russia has failed to effectively improve the forest sector development in terms of economic but also ecological sustainability. One of the most important underlying reasons is assumed to be found from the arrangements of property rights to forests. This also is the main hypothesis of the study. According to many economic scholars, only complete and well-defined property rights can successfully facilitate long-term sustainable development (Ostrom and Hess 2007). This elementary yet contested argument provides a starting point for the analysis.

It is assumed based on New Institutional Economic (NIE) theories (e.g., North 1990; Eggertsson 1991) that property rights as basic economic institutions determine the behaviour of economic actors. Institutional change is affected and driven by both economic and political agents that possess various and often contradicting motives. It is further assumed that external factors, such as the polity of the country, physical conditions and, from the point of view of this study, most importantly formal and informal rules-in-use constrain and direct economic development.

In this study, the Russian forest sector provides a case for empirical analysis. Since the last two decades the Russian forest sector, and society as a whole, has gone and is still going through a major political and economic reform that is featured with institutional changes with the aim to replace former centralised command economy with markets. Analyses mainly focus on the period that started from the disintegration of the Soviet Union in the beginning of the 1990s. However, when necessary, analyses also are extended to cover antecedent developments during Tsarist Russia.

These basic assumptions are drawn from the “Theoretical Framework”, discussed in more detail below.

Aim of the study

Following the basic assumptions discussed above, the present study tries to shed light on some of the main reasons why forest policy has failed to effectively improve forest sector development in Russia. For this purpose this study analyses the arrangement of property rights to forest resources, and further, the institutional arrangement of forest tenure. The analysis is carried out by studying the content and rationale of the Russian forest policy, and forest legislation in particular. The main focus of the analysis is on the state level. This approach is used because the major changes taking place at the federal level of the institutional framework. The federal level of legislation also regulates activities at regional and further local levels of management and use of forest resources. Federal policies also constitute the starting point and driving force for the further reforms at the lower levels of forests' governance. Within this context the role of informal institutions also is assessed. The development at sub-national level, mainly in Northwest Russia, is illustrated by empirical cases supported by statistics. The special emphasis is on the long-term commercial, or industrial, use of forest resources, which is organised through forest tenures.

The specific aims of the study basing on the five research papers are as follows:

- to determine and analyse the behaviour of the key actors and their power relations in the Russian forest sector;
- to analyse the action situation institutional-organisational arrangement of the long-term forest tenure;
- to assess the weaknesses of the economic sustainability of public forest management;
- to study the attitudes of the managers and key specialists of logging enterprises toward the new Forest Code, and;
- to compare property rights to forests in two state property regimes, Russia and Canadian British Columbia (BC) in order to find reasons for the problems in the Russian forest sector from the institutional arrangements regulating forests.

Accordingly, the organisation of the introductory part of the dissertation is as follows: In the "Theoretical framework" part the central theories and models utilised in the research papers are presented and their relevance to the topic of this paper is contemplated. Moreover, the institutional analysis framework (IAD) as defined by Schlager and Ostrom (1992) and Ostrom (2005) has been utilised in the creation of the common theoretical framework for the research papers of this study. In "Material and methods" the materials used as well as the main methods of the studies are presented. The "Results" part follows the contents of the original papers, but is to some extent restructured to fit in with the IAD. In the "Discussion" part, the results as well as the methods utilised are contemplated. Finally, the main conclusions of the study are presented together with the recommendations for the future research.

THEORETICAL FRAMEWORK

Analytical framework for institutional analysis (IAD)

The framework of institutional analysis (IAD) is adapted in this paper to the analysis of forest relations and property rights to forests. Ostrom *et al.* (1992) and Ostrom (2005) have established an IAD framework in order to analyse institutional arrangements in a conceptualised and systematic way. The IAD framework consists of two main entities, holons: the action arena and the external factors, i.e. the provisions of the action arena (Figure 1.). The IAD framework can be applied at many levels: what is a whole system at one level is a part of a system at another level. Consequently, in the framework allows the analysis of institutions at different levels according to which a whole system at one level can be a part of a system at another level (Ostrom 2005). This also enables analyses of different spatial and temporal scales.

External factors that are the provisions of the action arena in the IAD consist of biophysical and material conditions, attributes of community and rules-in-use. Each block consists of complex and multifaceted elements that have diverse and sometimes contradicting impacts on a particular action arena. These three main factors define and constrain the goals and operations models of the actors. From the point of view of executing institutional analysis, external factors are fixed and given to the participants. In reality, external factors change and evolve temporally and spatially: they are outcomes of an action arena at higher level and therefore subjects to change. This creates a linkage between IAD and institutional change. For example, legislation regulating actors taking part in forestry is the outcome of political processes. At the given situation, however, external factors constrain and define the possible actions and positions of the participants.

The concept of *rules* is central to the analysis of institutions. According to Black (1962) the concept rule is used to denote regulations, instructions, precepts and principles. Ostrom (2005) argues that despite that central role in institutional analysis there has been a lack of social research focusing on rules. For example, Rapoport (1989) argues that in game theory, rules are merely important because they allow the outcomes resulting from the choices of participants to be unequivocally explained. Thus, any set of rules, which produces the same relations between the choices and the outcomes, is considered equivalent to the game, or the action situation, in question. The dismissal of rules however blurs the relationships between the outcomes and the fabric of rules constraining the actions within a particular action arena producing them. This constitutes the focal point of the institutional analysis. In this paper, the concept of rules is used in regulation and precept senses, referring to legislation and normative as well as to informal institutions constraining the enforcement of these rules. The predictability and stability of rule ordered situations also is dependent upon enforcement (Commons 1995). Some rules are more predictable than others because of the lack of clarity, misunderstanding and change. Investments in monitoring increase the predictability whereas the lack of proper enforcement may result in considerable difference between predicted and actual behaviour. Predictability of the behaviour also can be improved by incentives, or alternatively by sanctions. According to Libecap (1989), who draws his evidence from ownership issues of mining, wood lands and fishing, there is a direct linkage between rules-in-use and property rights to forests; property rights that participants hold in different settings are a result of the underlying set of rules-in-use that also are subject to temporal change. In this study, the analyses of the rules that determine

property rights to forest resources, as well as the attributes of the community that shape the enforcement characteristics of the rules are of central importance.

Biological and physical conditions define what the possible actions are in relation to the action arena. These conditions determine how actions and outcomes are linked and what outcomes can be produced. It is notable that the same set of rules, e.g., tenure regulation in different countries, may create different kind of action situations and outcomes depending upon events by participants, events referring to goods and services produced, consumed and allocated as well as available technology. From the point of view of management and use of forest resources two attributes, excludability and subtractability, are of great importance. Excludability refers to the cost or difficulty to exclude others from the use of or access to resource. In Russia exclusive forest use rights are arranged through tenures. Subtractability of forests as common-pool resource means that one's use of the resource will affect other's future possibilities to use the resource.

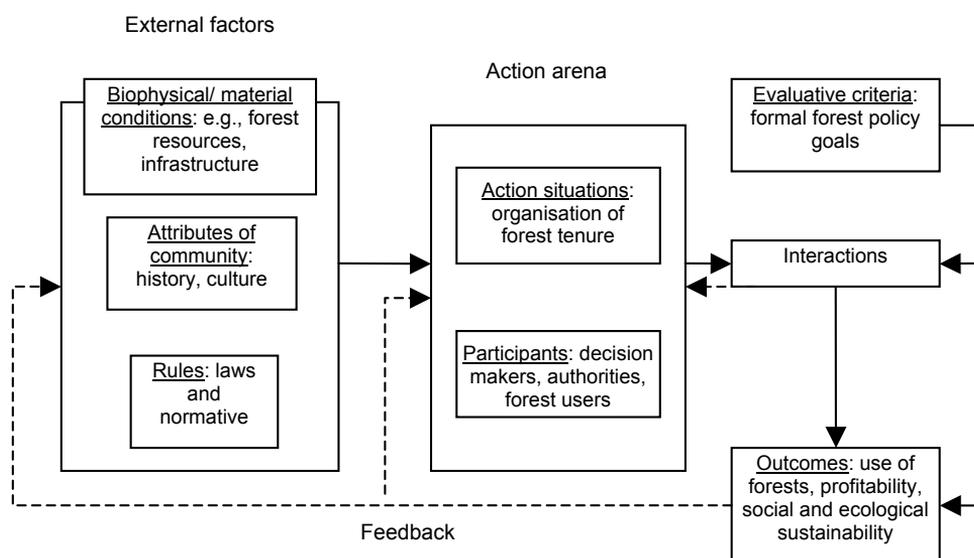


Figure 1. A framework for institutional analysis (IAD) in the organisation of forest tenure in Russia (Ostrom 2005, modified by the author).

Attributes of the community are important factors affecting the composition of the action arena. According to Ostrom (2005), values of behaviour accepted in the community in question, the common understanding that potential participants share, or do not share, about the structure of the action arena, homogeneity of preferences, the distribution of assets to participate and influence the action arena, as well as the size and composition of the community are all important factors. The size of the community is dependent on the context of the analysis, which can be global, national, sub-national or local. Culture affects the mental models that participants in a situation may share (North 1997). According to North (1993), one of the main reasons why economies that adopt the formal rules of another economy will have very different performance characteristics than the first economy because of different informal norms and enforcement of rules. This is the reason why comparative analyses of various institutional systems may provide deeper knowledge not only about institutions themselves but their impact and interaction within diverse economic, social and cultural contexts. The influence of these characteristics is apparent when, for example, property rights to forests in Russia and BC are analysed and compared in this study. Experiences and history with institutions governing resources affects the way participants understand, enforce, modify or ignore rules (Ostrom 1999). Communal attributes are subject to change, thus, there is a close linkage to path-dependence. Institutions affect interactions at all levels of a community. Mantzavinos et al. (2004) argue in their study on learning, institutions and economic performance that institutions' effect on economic and political outcomes should start from the analysis of the cognitive processes of individuals. In this study we analyse the attitudes of the managers of private timber harvesting companies (Article IV). It must be noted that attitudes unless socially shared do not qualify as (informal) institutions. However, it is assumed the attitudes indicate the potential behaviour of the actors, and therefore, provide useful information for the policy formulation and implementation.

Action arena consists of two holons: the participants and the action situation. *Participants* can be individuals, unions or corporations. The number of participants and the positions they hold may vary depending on the action arena. A typical *action situation* is, for example, buyers and sellers exchanging goods in a market, legislators making legislative decisions, or the organisation of the use of resource. In this study, the main *action situation* consists of the aspects of institutional arrangement of forest tenure and the allocation of tenure rights. The minimum requirement is that there are at least two participants that interact at the level of the selected action arena. Positions that may be significantly unequal in terms of available resources and power define the possible actions of the participants. Costs and benefits assigned to actions and outcomes can be considered as external incentives and deterrents in the action situation. How these costs and benefits, or distributions of rights and responsibilities, affect the choices made in regard to specific action depends upon the valuations of the participant in question. *Interactions* related to the action arena produce outcomes. Interactions are restricted by external factors and case-specific features of the action arena. On the other hand, realised interactions in turn affect the structure and content of action arena as well as the positions of the participants. In the given context, the allocation of forest resources has a significant impact on the outcome. Allocation can be based on price, such as auction, or bargaining. Through the system of allocation it is determined where, how, by whom and how long resource can be utilised (Gray 2002). These conditions comprise the essence of forest tenure by forming the operational environment for economic activities. Therefore, the method of allocation has a fundamental impact on the sustainability of forestry.

Outcomes that are produced through interactions in the action arena are essential source of institutional change. Outcomes considered favourable create commitment to the rules-in-use while rules producing results that are considered unwanted or unfair become subject of change by the participants. However, this is possible only if there are available information and mechanisms for feedback. Correct information about the causalities of the external factors, the action arena and the outcomes held by the decision-makers is a necessity for the efficient improvement of institutions. Provided the correct information, the *feedback*, which results from the outcomes, may eventually affect and change the external factors that constrain the action arena. Kozyreva (2006) argues that the unavailability of reliable information constitutes a barrier for the establishment of efficient institutions in the Russian forest sector.

According to institutional theory, the agent, i.e. the actor that participates the action arena is a key to the formation of institutions (North 1990). In forestry, the participatory planning and due decision-making of forest management is growing global trend, in which the central focus seems to be on the facilitation of local participation. Traditionally, participatory planning involves locals but also wide spectrum of interest groups from various levels of society such as the competent state bodies, private business, local communities, unions, environmental non-governmental organisations (NGOs) etc. (Kortelainen and Kotilainen 2006). The concept of participatory planning has become an integral part of the majority of modern forests governance models by addressing the issue of public forest organizations facing increasing demands, first, from the civil society institutions largely focusing on social and environmental issues, and second, from private sector institutions usually emphasising economic aspects (e.g., Niskanen and Väyrynen 1999; FAO 2009). The concept of governance refers in its widest sense to the various formal and informal systems, such as markets, hierarchies and networks as well as new forms of public management and public-private partnerships, according to which the social and economic life in general, is organised (Heywood 2000). Governance has become the key concept in policy sciences to indicate the changing role of the nation states in international and domestic affairs (Glück et al. 2005). Consequently, there can be governance without the government, as in case of open-access resource. The principal modes of governance are markets, hierarchies and networks that may exist separately or co-exist simultaneously in different combinations (Thompson et al. 1991). In Russia, governance has traditionally been state oriented and hierarchical: decision-making is largely conducted in closed administrative procedures within state bodies (Jakobson 2001). Teplyakov (2004) argues that despite some formal institutional prerequisites already in place the forest legislation, culture enabling and facilitating the participation of non-state bodies and the civil society to decision-making is only emerging. Tysiachniouk and Reisman (2004) report some increased activity in local public participation in relation to environmental issues of the forest sector in Northwest Russia. Multilevel governance of forest resources is of particular significance in Russian context because of various non-governmental stakeholders but also due to federal polity, which have its own specific politico-economic implications for forests' governance, as discussed in the next chapter.

In this study, the governance of forests encompasses the formal but also the informal features of the control, management and use of forest resources. In the analysis of *action arena*, the concept of governance in relation to stakeholder participation is to some extent narrowed down: the analysis is limited to those actors that directly take part in management and use of forest resources and related formal decision-making, namely the government of the Russian Federation and regional governments and their respective state

bodies responsible for the management and control of forests, as well as private forest industries using forest resources. The focus of this study is first on the constraints of the *action arena*, namely the regulative rules that define property rights in relation to management and use of forest resources. The attributes of community that affect the enforcement of the aforementioned formal rules are analysed. The selected action arena is the institutional organisation of forest tenure, and the arrangement in Russia. Subsequently, the *interactions* involved consist of the exchange of forest use rights, the performances of forest management operations and timber harvesting and investments in forest land.

Outcomes of the selected institutional settings are contemplated and reflected to the formal goals of the forest policy, which works as the *evaluative criteria*, in the discussion part. Outcomes can be; first physical, when the quantity of the outcome can be measured, such as harvested timber volumes, areas covered with silvicultural operations, as well as revenues/profits and costs of the operations; or second qualitative, when attributes such as services provided by forests such as recreation and conservation are valued by the participants. If taking the analysis to a higher level, i.e. selecting another action arena, forestry may compete with other forms of land use, such as agriculture, urban construction and infrastructure in society. Evaluation of the outcomes depends on the valuations of the participant in question; some value high economic benefits while others may appreciate more conservation and recreation values of the forests. The reconciliation of these sometimes contradicting goals constitutes the essence of forest policy in any country.

The IAD framework is not typically used in analyses of institutional change that require analysis over time. However, the IAD combined with time dimension, and consequently with path-dependency, provides a solid framework to identify the key features and courses of institutional development.

Federalism as a political institution in Russia

The polity of the country provides the general framework for political decision-making. The framework of political and legal institutions directly affects the establishment of forests' governance. Federal system in Russia is shortly analysed and reflected to the institutional development of the Forest sector.

In any modern state, power is divided on a territorial basis between central (national) and peripheral (regional or local) institutions (Heywood 2002). The nature of this division, however, may vary considerably due to historical, political, economic and geographical reasons. In federal regimes, the distribution is based on shared sovereignty, in which power and related functions and responsibilities are distributed between the central and peripheral levels of government. Each level of administration should enjoy a significant amount of political, legislative and fiscal independence from each other (Gregersen et al. 2004). In this sense, federalism provides a mechanism to balance local and central interests. Because the balance is not constant, it may vary significantly due to political changes. In *centralisation*, political power or government authority is concentrated at the national level, whereas *decentralisation* expands local autonomy through the transfer of power away from national bodies. Both have their advantages. According to Heywood (2002) centralisation enables the more efficient organisation of economic life, strengthening the national unity and evening out regional inequalities, whereas decentralisation consists of broadening the scope of political participation, bringing government closer to the people, making political decisions more intelligible and fostering checks and balances within government. At least

four types of decentralisation - political, administrative, fiscal and market decentralisation - can be distinguished (Heitmann 2000). The sharing of powers between the levels of government can appear in different forms and combinations across countries, within countries and even within sectors.

The Russian Federation as stipulated in the Constitution consists of 89 regions with diverse sovereignty (republics, oblasts, autonomies, krais, etc. referred to as the subjects of the federation). After unsuccessful reforms and the slow-down of Soviet economy before and during the Gorbachev era, the emerging Russia as a state was weak because of the collapse of political and financial institutional framework. During the political battle for power in the beginning of 1990s, Yeltsin encouraged and promised the regions to "take as much sovereignty as you can stomach" (Sutela 2003). Consequently, there was a great deal of variety and autonomy between the regions in terms of governance, legislation and the relations with the central government (Sakwa 2002). Lynn and Novikov (1997) argue that the federal system emerged was asymmetrical and bureaucratic, and it was based on a series of treaties between the centre and regions, rather than on an effective constitution binding the centre and regions together. These factors affected negatively the formation and adoption of national policies.

Åslund (2007) suggests that democratic development, contrast to economic reforms, largely failed due to the lack of acknowledged at least partially approved step-by-step process similar to Washington Consensus in democracy building. Åslund provides a controversial view that only reforms having shock therapy impact (as those used to modify economic institutions) could yield successful results whereas gradual reforms (aimed to alter political institutions) tend to fail almost systematically. After political reforms carried out in the 1990s, a new wave of political and administrative centralisation paralleled the establishment of a more unitary model of federalism that brought powers back to the central government in the beginning of the 00s (Barnes 2003). This has transformed Russia to close to executive federalism, in which the federal balance is largely determined by the relationship between the executives of each level of government. In Russia, the executive power is highly concentrated around the President (Sakwa 2002), who can nominate and denounce the leaders of the regional governments. Officially, the centralisation was justified by increasing need of national unity that was fractured in the 1990s. Hahn (2003) on the other hand argues that after the extensive and partly uncontrollable decentralisation of political and economic power at least some gathering of Russia's many virtually independent regions became necessary. Strategic measures taken consisted of legal and institutional reforms, such as the establishment of seven federal districts and the re-organisation of the federal administration as well as the harmonisation of regional normative with the federal legislation (Hashim 2005).

The evolution of political institutions, i.e. changes in the federal relations has strongly influenced institutional development in the Russian forest sector. Referring to the categorisation offered by Åslund (2007) it is safe to argue that at least until 2006, reforms in the Russian forest sector followed gradual path. The article 72 of *the Constitution* stipulates the ownership, normative regulation and management of natural resources under a joint governance of the federal government and the regional governments. This broad definition of *the Constitution*, which leaves possibilities for various legal interpretations, has been one of the focal issues of forest policy in Russia. So far, the constitutional setting has not affected the ownership structure of forests that is still monopolised by the Federation. Furthermore, despite the provision of joint governance, forest management has been strongly centralised; the federal forest administration has covered the whole power

vertical from the central to local level to date. On the other hand, regional and municipal authorities have received forest revenue and participated decision-making concerning the utilisation of forest resources (Petrov 1997). The revenue from forest use is divided between the central and regional governments, while the former has been responsible for costs of forest management. This unbalanced division of rights and obligations has created disincentives for sustainable management of forest resources. The central principle of the *Forest Code of 2007* is to establish a new balance for the between the parties by introducing a new division of rights and duties.

Understanding institutional change

The classical political science analysis defined institutions as organs of state that were sometimes extended by the intermediary organisations, fundamental formal norms and principles of political processes (Lauth 2000). Contrary to the former, thinking according to New Institutional Economics (NIE) understands institutions as norm patterns, which shape behaviour and in turn structure societal action and hence contribute to the security with which citizens can expect reciprocal behaviour from fellow citizens. From this determination follows the basic concept of NIE; institutions are the rules of game in society (North 1990). Institutions structure incentives by facilitating and constraining human interaction, the political, economic and social exchange.

NIE suggests that institutions have a fundamental role in determining whether an economy enters a path of growth and development or stagnation and decline (Eggertsson 1991). NIE differs from classical economics because it also pays attention to social and cultural aspects affecting economic theory. Institutions reflect the prevailing characteristics of society and consequently change and evolve over time. The agent of change, or the player, is the entrepreneur - political or economic - who focuses, according to economic theory, on potential wealth maximisation (North 1997). However, contrary to classical economic theory, NIE does not assume the rational behaviour of the actors because actors are bounded with the lack of complete information.

The origin of institution affects the pace and nature of institutional change. Formal rules consist of political and judicial rules, economic rules and contracts. Political rules broadly determine the hierarchy of polity and the basic decision structure. Property rights are in fact part of economic rules that consist of e.g., competitive markets, banking system, whereas contract, usually written defines the terms of resource use and the distribution of income among the participants (Cheung 1970). Informal constrains include routines, customs, traditions, perceptions and culture. Helmke and Levitsky (2004) define the distinction as follows: "formal institutions are openly codified, in the sense that they are established and communicated through channels that are widely accepted as official ... informal institutions are socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels".

O'Donnell (1995) argues that "an institution stands for a regularised pattern of interaction that is known, practiced, and accepted (if not necessarily approved) by actors who expect to continue interacting under the rules sanctioned and backed by that pattern." From this follows that even if formal rules are accepted, actors do not necessarily approve them. This in turn affects the motivation to obey the rules. Informal institutions interact in various ways with formal institutions. The interaction depends on the goal setting of both formal and informal institutions as well as the efficiency of the former: informal institutions

complement or accommodate efficient and substitute or compete with inefficient formal institutions (Helmke and Levitsky 2004) (Table 1.). Complementary informal institutions fill in gaps either by addressing contingencies not dealt with in the formal rules or by facilitating the pursuit of individual goals within the formal institutional framework. Complementary informal rules often enhance the efficiency and may serve as a foundation for formal institutions. Complementary arguments assume that formal institutions are to some extent incomplete, since otherwise any outcome could be legally enforced without the need of informal institutions (Zenger et al. 2002). Accommodating informal institutions contradict the spirit but not the letter of formal rules. This indicates effective yet not necessary socially accepted formal rules. Informal institutions create incentives, political or economic, to behave in ways that alter the substantive effects of formal rules. Competing informal institutions structure incentives in ways that are incompatible with the formal rules; to follow one rule, actors must violate another. In this case, ineffective formal rules are not systematically enforced that enables actors to ignore or violate them. Substitutive informal institutions that are compatible with formal ones achieve what formal institutions were designed but failed to achieve (Helmke and Levitsky 2004).

In this study, the model of Helmke and Levitsky (2004) is adopted to describe the potential effect of the leaseholders' attitudes toward the *Forest Code of 2007*. It should be noted, though, that attitudes as such do come under institutions unless they as socially shared norms affect actors' behaviour.

Formal rules can be created through collective-choice actions, whereas informal constraints evolve over time as result of collective learning processes (North 1997). Dahrendorf (1990) makes a strong statement for persistence of informal institutions by arguing that while the formal normative framework can be created in six months and economic institutions in six years, the reformation of the cognitive models and everyday lifestyle may require even sixty years. Informal norms that change only gradually thus tend to be more persistent than formal rules (North 1997). Since norms provide legitimacy to a formal set of rules, they constrain the often fast change of formal rules by affecting their enforcement, and thus, resulting in policy outcomes that are often different than anticipated. This also holds true in post-Soviet Russia: numerous examples of economic reforms can be found in the 1990s that failed to achieve the intended results, not only because of failed policies but even more importantly because of their lackadaisical implementation (Kolodko 2000; Sutela 2003; Åslund 2002). The disintegration of the Soviet Union also degraded the formal institutional framework. Existing or emerging informal constraints complemented or competed with the weak or non-existing formal institutional framework. For example, because the lack of formal functioning structures people relied on existing informal networks in their everyday life. Similarly, enterprises maintained and established networks in order to survive in rapidly changing uncertain operational environment. In the forest sector, as elsewhere in the economy, barter was a common way of transacting between enterprises (Carlsson et al. 2000). The role of barter in relation to the formal rules is straightforward: During the central planning economy, barter completed formal rules by providing access to resources within informal networks between the enterprises. Without these unofficial channels the official production goals could not have been reached (Åslund 2002). Informal networks to large extent survived in the 1990s. However, now barter transactions competed with formal rules by reducing financial flows between and within (salaries in kind) enterprises and therefore contributing to the decrease in tax revenue.

Table 1. Typology of informal institutions (source: Helmke and Lewitsky 2004).

	Effective formal institutions	Ineffective formal institutions
Compatible goals	Complementary	Substitutive
Conflicting goals	Accommodating	Competing

From the institutional perspective, individual choices and attitudes play an important part in the institutional change and in change of the informal rules. Albeit not the focal point of this study, the importance of the understanding the formation of actors' goals and motivations underlines the need to contemplate briefly the theoretical background of "cognitive institutionalism" as defined by Mantzavinos et al. (2004). This approach does not assume economic actors' rationality, which separates it from the classical economic theory. Based on cognitive theories, individuals create *mental models* that are used to interpret and structure the information from surrounding environment (Fetzer 1999). Mental model can be understood as the final prediction regarding the environment that individual makes before getting feedback from it. Based on this feedback the model is either validated as beliefs, or refined or rejected (Mantzavinos et al. 2004). For instance, economic feedback of the entrepreneur may result in changes in technology or in collective-choice actions alter the recurrent rules into more profitable ones. Feedback therefore plays a prominent role in defining the success or failure of the model, and is essential part of individual learning. At collective level, shared mental models are established through communication within a social group (family, neighbourhood, school, i.e. organisation) over time (Denzau and North 1994). The evolution of shared mental models over time depends on the size of the group and therefore is different within organisations and in society overall. From this point of view, institutions are nothing more than shared mental models or shared solutions to problems of social interaction (Mantzavinos et al. 2004). In this way, institutional change that is triggered by the valuation of outcomes of economic (or political) performance can be traced back to shared collective mental models of the participants and further to the beliefs of the individual of the social group.

Like institutions in general, property rights change due to the interplay of political and economic factors (as discussed in more detail in the next chapter). Demsetz (1967) suggests that "the emergence of new private or state-owned property rights will be in response to changes in technology and relative prices". In this so called naive theory of property rights, the state has an implicit role as a redefiner of the structure of property rights and a provider of public goods such as standardised weights and measures that reduce transaction cost. The model has been criticised, since there are evidence of state activities that in contrast increase the costs of transacting (e.g., Libecap 1989). North (1990) extends the naive model by adding social and political institutions by suggesting that actors and their motives play the key roles in institutional change. Eggertsson (1991) points out that according to the interest-group theory of property rights, individuals and groups can maximise their wealth by focusing on production within the existing framework of institutions or by seeking favourable changes in law and regulations from rulers, legislatures and government bureaus. In other words, besides investments in knowledge and technology, organisations may put emphasis in acquiring the kinds of social capital and bargaining power that will

yield the highest pay off. This also is to suggest that institutional change that is an outcome of political process, and hence, mirrors relative bargaining powers of the various interest groups that participate in collective-choice decision-making, does not always result in increased productivity or economic efficiency. However, Libecap (1986) argues that besides economic goals, political and equity factors, shaped by preferences, must be considered when analysing changes in property rights arrangements over time because

"Distributional conflicts arise when property rights are coercively redistributed by the state with little or no compensation ... Disadvantaged parties will oppose the new arrangement, even though it allows for an aggregate expansion in production and wealth."

Libecap's statement suggests that not only economic performance but also the experience of fairness and reciprocity are important for the legitimacy of property rights arrangement. The assessment of property right institutions is based on economic but also other non-economic outcomes. In relation to management and use of forest resources, property right issues related in particular to social and ecological outcomes play crucial role in decision-making at society level. In Russia, for example, Tysiachniouk and Reisman (2004) have analysed forests' social and non-monetary values in regard to market development: the forest sector, which has traditionally provided income but also social services and infrastructure is changing at rapid pace eroding the socioeconomic structures in rural settlements.

It can be argued that while a stable formal institutional framework is a precondition for sustainable forest management, the role of informal institutions remains significant in the Russian forest sector. There is an elemental linkage between property rights as basic institutions as well as informal constrains and enforcement of the rules. In this paper, the analysis of the changing institutional framework that regulates the property rights to forests are analysed by using the models of path-dependency and transaction costs. Moreover, the effect of attitudes and precepts of the economic actors, i.e. managers of logging companies towards the new *Forest Code of 2007* are estimated. These attitudes can be used as indicators reflecting the potential behaviour of the actors, and thus, forecast the effects caused by the enforcement of the Code.

Property rights and tenure as institutions

Property rights are key institutions that determine the use of resources and they influence the behaviour of resource users. By shaping the performance, the property right characters, such as allocation of benefits and costs in relation to a certain property such as land or forest as well as making and enforcement of rules, have a fundamental impact on the economy (Eggertsson 1991; North 1990). Property rights are defined by the sets of formal rules, such as laws, taxation and contracts but also by informal norms. Commons (1995) defines property right as the authority to undertake particular actions related to a specific domain. Alchian (1977, as cited from Eggertsson 1991) notes that

"The right of individuals to the use of resources (property rights) in any society are to be construed as supported by the force of etiquette, social custom, ostracism, and formal legally enacted laws supported by the state's power of violence of punishment. Many of the constraints on the use of what we call private property involve these

forces. The level of noise, the kind of clothes we wear, our intrusion on other people's privacy are restricted not merely by laws backed by police force, but by social acceptance, reciprocity, and voluntary social ostracism for violators of accepted codes of conduct.”

Following this definition, the concept of property rights applied in NIE is wider than the legal concept of property rights because of the inclusion of social norms. A system of property rights, as pointed out by Berge and Saastamoinen (2002), can be defined as an institution, which determines who legitimately benefits, how much, for how long and in what ways from the resource. Certain property right arrangements can increase the efficiency of economic activities by reducing transaction costs in exchange and production and encourage investment in order to promote overall economic growth, whereas others decelerate and obstruct development (Libecap 1989). There is no all-embracing theory, how a property right regime that enables efficient market should be designed. The efficiency of a particular property right arrangement depends on the wider social and cultural context. The determination of property rights institutions is a subject of political process, in which the state in any modern society has a pervasive role. This process may involve either negotiations among immediate group members or lobbying activities at higher level of government (Libecap 1989). In his seminal work on transaction cost, Coase (1960) argues that the economic growth and development of a country are basically unaffected by the type of government it has, if the cost of transacting in both the political and economic spheres is zero. However, when transaction costs are positive, and in the real life they always are, the distribution of political power within a country and the institutional structure of its rulemaking institutions become critical factors of the economic development. Nevertheless, democracies will not necessarily outperform other types of regimes as a route to economic prosperity. This is visible, e.g., in China, where relatively high economic freedom has enabled fast economic growth under strictly centralised one-party system (Blanchard and Shleifer 2001).

In relation to property rights to common-pool resources, Katila (2008) defined the ideal type of property right as one where local actors have been devolved comprehensive use rights, including extensive management rights, rights to exclude others from the resource and rights to transfer these rights. In addition, these rights are to be secure and possessed perpetually. In other words, all property rights are concentrated on one actor or group of actors. In real life, however, this ideal type is seldom met, and thus, property rights usually are incomplete. Property rights systems that do not contain the right of alienation, which in economic literature is equalled to private property, are often considered being ill-defined. On the other hand, as argued by Ostrom and Hess (2007) incomplete set of rights even without the right to alienation does not necessarily impede well-defined and secure property rights. However, no type of property rights regime works equivalently in all types of settings (Quinn et al. 2007). This has multifaceted effects on property governance.

There are various rights and responsibilities but also restrictions related to a certain piece of property (Eggertsson 1991). Even private owners usually have obligations not to cause harm to others (Demsetz 1967) and the use of private property such as land, is usually constrained by legislation, environmental and other regulations that are enforced by the state. In state property regimes, citizens typically have rights, such as public right of access to forests, that constrain state-owner's right of possession. Potentially, a state-property regime in which state government owns and controls the property has an advantage in flexibility concerning adaptation to changing values of society, whereas, "effectiveness and efficiency depend on the ruling actors and their interests in the particular political system"

(Glück 2002). The statement indicates that state ownership as such is not the main problem in Russia. However, origins for various problems in relation to forests' governance can be traced to obscure arrangement of property rights to forests. If compared to the ideal type presented by Katila (2008), property rights to forests in Russia are fragmented. This, combined with diverse motivations of the participating public and private sector actors, creates an obstacle for the efficient governance of forest resources.

In studies of law, the conception of ownership, or property rights, constitutes of an entity of various rights. According to this model, also utilised in NIE, property rights have commonly referred to as a bundle of rights, or sticks, each denoting to a right in relation to a certain property. Honore (1961) highlights complexities of ownership by identifying constituent elements of private property as possession, use, management, earning, sovereign, protection against expropriation and harm from others, transfer by inheritance, possession, prohibition against detrimental use and the reinstatement of violated authority. Each aforementioned right as such is a complex idea. Therefore, the concept of property rights as bundle of rights is to explain the complexities of property ownership, in which a property can simultaneously be owned, or more precisely, the rights in relation to the property can be possessed in various combinations by multiple actors. Bromley (1991) defines property as a benefit stream, according to which to have property is to have control over that stream. Property rights also can be seen as part of a broader set of factors determining the ability, or power, to access and utilise the resource. This ability is affected by various mechanisms, processes and social relations. According to Ribot and Peluso (2003) access to resources, capital, markets or labour is partially shaped by the law, while access to other sources, namely authority, social relations or knowledge, in turn may give powers to influence the content of the law and therefore improve abilities to access and benefit from a resource. Access, similarly to power, focus here on the issues of who, in what ways and when, does get to use the resource. The approach provides more realistic picture about the use of resource, than a simple analysis of rights in relation to the property. In forestry, Pearse (1990) determines the dimensions of property as comprehensiveness, duration, benefits conferred, transferability and exclusiveness. These dimensions vary in different combinations from complete, which exist only in theory, to truncated property rights.

The aforementioned models of property rights have a common approach in binding the rights and responsibilities together: the exercise of one's right creates externalities caused by the execution of this right. The externalities usually are costs and obligations related to the right, e.g., the use of resource. For example, in many countries with adopted forest management regime there is a legal necessity of regeneration after final felling of forest. Obligations increase the cost of the exercise of a right. Usually the holder of right bears the costs caused by the exercise of the right too. However, in some property regimes such as open access and common property systems the answer is not that simple: one's use of common-pool resource diminishes other's possibilities for utilisation but the means to prevent free-riding and depletion of the resource are limited and costly (Ostrom and Hess 2007). The same applies to forests as a common-pool resource, if property rights are not clearly defined, the externalities caused by resource use may be imposed to other actors (Ostrom 1990). This so called tragedy of the commons, first defined first defined by Harding (1968), free access and unrestricted use of a finite resource results in uneconomic over-exploitation and depletion of the resource, constitutes a major challenge for the sustainable management and use of recourse. Humphreys (2006) argues further that along with the contemporary global neoliberal political economy, there are increasing pressures to

open forests to private sector investments and a reliance on market-based instruments and voluntary private sector regulation. Accordingly, forest policies have been oriented from the provision of public goods, such as forest conservation, towards the production of private goods, such as commercial timber, and at the same time, market-based instruments are increasingly used in the maintenance and production of public goods (FAO 2009).

Property can be conceived as common, private and state property, or when the property is owned by no one, open access property. Common property is based upon a shared right of access to property amongst members of a collective body, none of whom can exclude except in relation to non-members. Private property is the right of an individual/institution to exclude others from the use of benefit from the property. In this sense, some claim that state property may be considered as a particular form of private property belonging to the state: the state uses the decision-making powers similar to the private owner (Heywood 2000). It must be acknowledged, however, that in the state property regime, decision-making involving various stakeholders representing a variety of interests usually is more complex and multifaceted. In state property regimes, the use of state property is often organised either through state property management organisations, such as state forest services, or through various private tenures. The organisation of the latter in sustainable and efficient way constitutes one of the key challenges of contemporary forest policy in Russia.

The concept of tenure is in line with the idea of property rights as a bundle of rights; the parts of the property right can be transferred to other parties without losing the ownership. The simple distinction made between private and public property is misleading with regard to tenure, in which property rights to resource can take various forms. Tenure refers to the relation between the owner and the tenant, the latter being the leaseholder of the land (Lawson and Rudden 2002). The historical origin of various tenure systems can be found from feudalism. In feudal systems, the land was owned by the ruler, who allotted land use rights to nobility in return for services to the state, and peasants got permissions from the nobility to cultivate land in return for taxes and work contributions. In the contemporary analysis of leases, the historical landlord-tenant concept has been transferred to the modern research. The tenure of the state land is based on the idea that the state may give away rights related to the land. This does not however mean the loss of ownership or authority over the property, since the owner retains the control over these rights. Tenure rights - licenses, leases or permits - can be obtained with or without compensation (Pearse 1990). Tenures are usually reversible and the usufruct on the state forest land usually connotes restrictions on use.

Globally as well as in Russia, forest tenures on public forest lands usually are organised through contracting (Gray 2002). The principal-agent relationship, which is one of the key theories of contracting, provide theoretical basis for contracting and the design of forest tenure. Principal-agent theory, or agency theory, deals with the relationship between a principal (owner of a resource) and an agent (tenant and/or user of a resource) (Sappington 1991). Agency theory is concerned with the design of contract terms and conditions that provide both positive and negative incentives for the agent in order to achieve the principal's objectives and harmonize their interests (Gray, 2002). In this case, principal (the state) contracts an agent (private logging enterprise) to carry out certain set of duties (harvesting and silvicultural operations) that are agreed in the agreement. The problem of principal-agent relationship arises because the interests of the principal and agent differ. The monitoring of the agent's performance however is difficult and costly because of the asymmetrical distribution of information; agent always has more information about the execution of the contractual obligations than the principal, and therefore, may shirk

responsibilities (Eggertsson 1991). It is more efficient and perhaps less costly for the principal to create economic incentives that encourage the dutiful implementation of liabilities by the agent rather than to establish control systems (Libecap 1989). Principal-agent relationships are also involved in delegation of operations, such as forest management and supervision of tenures, to lower administrative levels of administration.

Property rights and the regulation of forest tenure in Russia

In Russia, there are strong traditions of state property: the land belonged to Tsar who could grant land areas to nobility in return for services for the crown. In Tsarist Russia, the land ownership was a natural extension of political authority. The country was generally considered as a huge estate that was owned by the Tsar. Consequently, within this patrimonial property regime, the distinction between the public and private property was not clear or unambiguous because the ruler is the state and the state is the owner (Frye 2004). Pipes (1999) argues that the engrossed formation of property rights to land also contributed to the weak development of the rule of law in Russia. This provides contrary development paths to some western countries, where the emergence of private property rights created needs for legal protection and systems of dispute conciliation that in turn fuelled the development the judiciary and rule of law.

Other forms of ownership emerged later in the 18th and 19th Century, and by 1917, the forest ownership structure in the European part of Russia was as follows: state 66%, private 22%, rural communities 8% and others 4% (Redko and Redko 2002). These other forms of forest ownership were, however, abolished after the Revolution in 1917. Neither were property rights static in the Soviet Union. Golik (1992) argues that the state property transformed into departmental-branch property in which departmental-branch monopolies, driven by bureaucratic motivations, controlled and dominated local markets. Competition over resources, if any, existed between the branches that represented narrow group interests. In the Soviet Union, forestry organisations and forest industries in mainly located in separate administrative branches. Contradictions were reported between state forest management organisations and, first, forest industries and second, other industrial blocks using forest resources on free-of-charge basis (Algvere 1966). The former was featured with competition over available valuable timber resources, while the latter was mainly stemmed from forest administration's lack of means to control the forest use carried out by large industrial conglomerates (Ilyin 1999). The transition period and the mass privatisation of industries facilitated a major redistribution of property and the emergence of the private sector in the Russian economy (Tikhomirov 2000). This change also took place in the forest sector. Forest industries were almost totally privatised and a new and increasingly influential group of private actors, forest company managers, entered the sector. This changing situation created increasing demand for private forest tenures for commercial forest use.

The system of state ownership continued in modified forms later in post-Soviet Russia. Parallel to the ownership of forests, the system of forest management has also been highly centralised. Central argument during the soviet period was that efficient management of forests could be ensured only by securing the independent status of the forest administration (Orlov 2006). Accordingly, forest administration formed a so called power vertical according to which the authority over forest resources covered all levels of administration from the national to regional and local level. Rosleskhoz thrived on the independent status

until 2000 when it was subordinated to the Ministry of Natural Resources, and later in 2008, to the Ministry of Agriculture of the Russian Federation.

The land ownership in general has taken gradual, although cautious, steps towards privatisation. The legal basis of land ownership was established by the *Land Code of Russian Federation of 2001*. This law enabled the emergence of private land outside agricultural lands comprising 2% of the total land in Russia. The privatisation of agricultural was facilitated the *Federal Law 101 on Agricultural Land Turnover* in 2002. It must be noted that the earlier *Land Code of 1991* already provided for the small-scale privatisation of agricultural lands. This wave of privatisation was however short-lived.

The aforementioned reforms have had little if any impact on forest land ownership. Forests are still state property according to the *Forest Code of 2007*. The federal government owns almost all the forest resources in Russia, 99.5% in total. Also, former agricultural forests that during the Soviet period belonged to agricultural organisations – kolhozy and sovhozy – traditionally and that have had high regional and local economic and social importance were incorporated into state forest lands in 2004 (Kozyreva 2006). At present, there are only some municipal forests that serve mainly recreational purposes outside the state forest land (*lesnoy fond*). However, in the long run, forests' ownership situation may change since the privatisation of the state forest land is possible through the *Land Code*, which serves as legal umbrella for all land ownership issues in Russia..

According to the *Forest Code of 2007*, the state forests are divided into three categories based on their primary function: commercial, conservation and reserve forests. The distinction is not however unambiguous: limited harvesting of timber is allowed in a large part of conservation forests, while reserve forest can be distinguished from commercial forests only because of their economic and technical accessibility. The use of the state forests is organised through tenures. The focus in this research is mainly on the organisation of the long-term commercial harvesting of timber through forest lease, which at least at the moment, is the most important from economic point of view. Despite the centralised ownership of forest, forest resources are mainly used by private agents – commercial timber harvesting enterprises. There are also various ways to organise forest management in leased forest as will be discussed later. The institutional organisation of forest management is of high importance from the sustainable development point of view.

In Russia, the right to harvest timber does not give right for other uses of forest land. Apart from timber harvesting there are various tenures for other forest uses purposes, such as hunting, recreation, collection of resin, geological investigations and extraction of subterranean resources to name few. Tenure rights can be concentrated simultaneously on the same forest plot. Tenure often contains temporal limitations, particularly in relation to commercial tenures. However, exceptions to this can be found, for instance in British Columbia, where tenures for indigenous people can be granted for the present (Wang and van Kooten 2001).

The majority of studies on property rights to forests in Russia focus on how to organise efficiently the legal and financial base for forest tenure within the state regime (e.g. Petrov 2002; Pisarenko *et al.* 2007). Within this context, the privatisation as one of the alternative forms of ownership of forest land has been contemplated too (e.g. Petrov 2003; Shutov 2007). From the point of view of research, it is important to separate these two aspects from each other. The former comprises an actual topic for forest policy research, and is one of the key issues of this study. The latter, however, is one of the main socioeconomic issues in Russian forest policy that has since 1991 generated heated political debate, and similarly, actively although less publicly lobbied during the drafting of the new forest law

(Kornysheva 2004a; 2004b). It must be noted that this study does not systematically seek whether the state forest lands in Russia should be privatised or not. This question is, however, one of the key issues of forest policy in any country, and therefore, cannot be bypassed in the context in which institutions and property rights to forest resources are analysed.

In the Russian research, property rights to forests have been referred to as forest relations (*lesnye otnoshenie*) (Petrov *et al.* 2004; Lovtsova 2007). This approach is in line with the concept of tenure. Forest relations denote the political, economic and social relations between the actors in the forest sector. These relations that constitute of rights and obligations to forests can take a form of political, administrative, economic/financial or social interaction. These interactions are regulated by the formal institutions. Consequently, a change that takes place in the formal institutional framework, such as an adoption of new forest law, also alters the proportional economic and social positions, i.e. the division of rights and responsibilities, of the actors involved in forestry. As pointed out by North (1990) the effects of the changing formal institutions are constrained and counterbalanced by complex interlacing structures of informal institutions. The effects of informal norms and customs to forest relations in Russia have been studied at the local level (e.g. Kortelainen and Kotilainen 2006; Tysiachniouk 2007). Alternatively, as proposed by Ribot and Peluso (2003), actors, if able, may adapt themselves to, or modify the new changing conditions by using accesses to various sources of capital, authority and/or social relations. In post-Soviet Russia, the Russian federation represented by key ministries, federal forest administration bodies, the regional governments and to some extent local municipalities as well as private forest industry has been the main actors in forest relations. The relations between these actors have changed considerably during the last fifteen years due to changes in forest legislation but also because of changing federal politics and economic policies (Ruutu 2001; 2007). Outside the formally regulated forest relations, the indirect influence of Russian and international non-governmental organisations on forest policy issues with particular emphasis on forest conservation is constantly increasing through active campaigning and information dissemination but also close collaboration with state officials and private business operators (Kuliasova *et al.* 2006; Tysiachniouk 2007).

MATERIAL AND METHODS

Materials

The materials used in this study consist of legislation, academic and professional papers, statistics collected from public sources as well as primary data collected. A wide spectrum of Russian and international academic and professional literature have been utilised in all original research papers. The list of other materials used in original research articles is as follows:

- I. Relations between the key actors of the Russian forest sector were analysed by using the *Constitution of the Russian Federation of 1993* and the following forest legislation: the *Basic Principles of Forest Legislation in USSR and Soviet Republics, 1978*; the *Basic Principles of Forest Legislation, 1993*; the *Forest Code of the Russian Federation, 1997*; and, the *Federal Law 122* and the *FL 199*, the *FL*

2004. Moreover, three drafts of the emerging Forest Code were used in the analysis. The analysis of the *Forest Code of the Russian Federation of 2007* has been added to the analysis in May 2008.

- II. The data employed consists of official statistics, data from literature, original data and some unpublished data of the Federal Forest Agency. Original data consisting of information on leaseholders' contribution to silvicultural operations is collected from three regional forest agencies in Northwest Russia: Leningrad region, Karelia and Novgorod. The data collection was organised by the All-Russian Institute for Continuous Education in Forestry (ARICEF). Besides original data, an analysis of the *Forest Code of the Russian Federation, 1997* and the *Forest Code of the Russian Federation 2007* were carried out. The forest lease data (Table 2. in the original article) has been up-dated in May 2008.
- III. The original financial data about the public costs of and revenue from forest management has been collected from the *Rosleskhoz* and compiled by the author. Other complementary statistics is collected from professional and statistical literature. the *Basic Principles of Forest Legislation, 1993*, the *Forest Code of the Russian Federation of 1997* and the *Forest Code of 2007* have been utilised to analyse the formal distribution of property rights in relation to forest lease. The data about the forest management costs and revenue from forest use (Figure 1. in the original paper) have been up-dated in May, 2008.
- IV. Qualitative data collected through questionnaires consists of the responses from the managers and key specialist representing 53 timber harvesting enterprises in Northwest Russia with long-term lease contract in force. This sample represents: 63%, 10% and 24% of the leased forestland, and 91%, 41% and 35% of the total cuttings under lease contracts in Leningrad, Karelia and Archangel, respectively. The data has been collected by the co-author V.N. Petrov during May and June, 2007. The questions in the structured questionnaires were designed to cover all the areas that are affected by the newly adopted Forest Code: the general attitudes and expectations about the future, economic consequences, social consequences, and ecological consequences.
- V. The comparative analysis of the property rights to forests between Russia and Canadian British Columbia (BC). Material consists of legal documents including *The Constitution of the Russian Federation of 1993*, the *Forest Code of the Russian Federation of 1997* and the *Forest Code of 2007* and the *Ministry of Forests Act*, the *Forest Act* and the *Forest and Range Activities Act* of the BC as well as relevant Russian and Canadian academic and professional literature.

Methods of policy analysis

The concept of property rights in the resource management

Property rights was a central concept particularly in articles II, III and V. Property rights to natural resources can be understood as a bundle of rights. According to Schlager and

Ostrom (1992) property rights can be identified as: 1) *access* i.e. the right to enter a defined property; 2) *withdrawal*, which stands for the right to obtain the products of a resource; 3) *management*, which is the right to regulate internal use patterns and transform the resource by making improvements; 4) *exclusion*, stand for the right to determine who will have an access right and how this right may be transferred, and; 5) *alienation*, the right to transfer, sell or lease, either or both rights of management and exclusion. The alienation right belongs to the owner of the property, who holds the complete set of rights to resource (Table 2.). The larger the set of rights possessed the higher is the possibility of reward when investing in withdrawal rights and so there is a stronger incentive for long-term investments (Schlager and Ostrom 1992.). Conversely, the narrower the set of rights on possesses, the lower is the incentive for investments. Finding the optimal balance of rights between the owner and other actors is essential for efficient organisation of forest tenure, which also facilitates the sustainable management and use of forests.

These aforementioned rights can be illustrated by concepts that tie property rights to the hierarchical system of governance of forest resources in Russia. Alienation is illustrated by the structure and establishment of the formal forest ownership, exclusion can presented by proprietary and control functions over forest resources, management refers to the operational forest management functions that are used for the renewal and improvement of forests' productivity, whereas withdrawal focuses here on the establishment of forest use payments and the distribution of revenue.

Property rights to resources also differ in terms of their status. Actors possessing different sets of sticks consequently hold various positions in relation to a property. Besides the number of rights one possesses, actor's position also is determined by the attributes of those rights. Kiser and Ostrom (1982) identify the three levels of rights categorised as constitutional, collective-choice and operational rules. Operational rules access and withdrawal refer to exercising a right while participation to the formation of collective-choice rules enables to devise future rights to be exercised. Similarly, actions at the highest level of constitutional-choice entail the devise of collective-choice rules. They are in fact rules about rules. In this sense, according to this hierarchy of the rules, rights (and obligations required) may be considered as operational rules that are subject to collective choice rules about when, how and where the operational rules shall influence the behaviour of property rights holders (Sproule-Jones 1999). Subsequently, the higher the rule, the higher is the cost to modify or alter the rule. For example, citizens are able to participate various actions in order to modify every-day life rules such as rules of the housing while the change of the constitution is extremely difficult.

The difference in terms of economic performance between the collective-choice and operational rights is substantial. A possession of operational right allows benefiting from the resource. However, the holder of collective-choice rights may modify the content of the rules, which is in essence to determine conditions of use and management of forests. The ability to alter the rules, i.e. changing the rights and obligations in relation to forests, is essential in long-term because it allows to the modification of rules. This in turn allows developing the governance system to meet more efficiently the changing requirements of the environment, or the action arena of the forest sector; the society and environment.

Table 2. Bundles of rights associated with different positions in the resource management system (modified from: Schlager and Ostrom, 1992; Glück, 2002).

	<i>Owner</i>	<i>Proprietor</i>	<i>Claimant</i>	<i>Authorized user</i>	<i>Unauthorized user</i>
Alienation	x				
Exclusion	x	x			
Management	x	x	x		
Withdrawal	x	x	x	x	
Access	x	x	x	x	x

Model of path-dependency

Path-dependence means that the outcome of a process depends on its history (North 1990). This approach was used in the articles II and III. Institutional change shapes the way societies evolve over time and it is the key to understanding historical change. This constitutes the core of institutional evolution (North 1990).

The theory of path-dependency was originally developed by economists to explain technology adoption processes and industry evolution, but it also has been applied to analyse wider historical and societal courses of development. Roe (1996) classifies path-dependencies based on alleged presumption of evolution towards efficiency. Liebowitz and Margolis (1995), on the other hand, identify three degrees of path-dependencies based on their inefficiency or harmfulness. First-degree path dependence is a simple assertion of an intertemporal relationship, with no implied error of prediction or claim of inefficiency, second-degree path dependence stipulates that intertemporal effects together with imperfect prediction result in actions that are regrettable, though not inefficient, whereas third-degree path dependence requires not only that the intertemporal effects propagate error, but also that the error was avoidable" (Liebowitz and Margolis 1995). The basic assumption in both approaches is that decisions are made based on imperfect information or understanding about the long-term consequences. These decisions in turn result in more or less inefficient outcomes when superior alternatives exist. After the decision is made changing the course of development is complicated and costly because of the cumulative effects of decision-making. The imperfect information situation is common in forest management in which the outcomes of the decisions made are felt after several decades.

Path-dependence is affected by the development of both formal and informal institutions. Generally, institutions change incrementally rather than in an intermittent fashion. However, an abrupt and radical change in society, such as revolution, may break the incremental nature of institutional development. Other example can be found from the collapse of the socialist system in the beginning of the 1990s and the transition towards markets and, at least in some countries, democracy.

According to Liebowitz and Margolis (1995), the course of development may, in a given context lock-in something unwanted or inefficient. In the long run the selected

technology may not turn out to be the most efficient one. However, once the decision is made the emergence of competitive, and even though superior, techniques is extremely difficult. The selection of QWERTY as basic keyboard system, or the selection of VHS over Beta-cassette represent cases that the selected technology in long-term may not necessarily turn out the most efficient one. This does not suggest that the change of the development path is not possible, quite the contrary. However, the change requires determined policies (at the level of state or enterprise) and an efficient enforcement of the rules. In this respect, a centralised and unified system of decision-making at least in theory is efficient in carrying out activities necessary for the change whereas in a decentralised decision-making difficulties may occur because of the independence of separate decisive bodies resulting in the lack of unified goal-setting and the coordination of actions. On the other hand, decentralised decision-making may increase participants' commitment to the process of change. As an example, the organisation of federal forest administration has not favoured the implementation institutional and organisational changes in forest management: hierarchical and closed decision-making procedures have resulted in low commitment to and lackadaisical enforcement of the new rules at local level (Eikeland et al. 2004).

Path-dependency model, by adding time perspective, no doubt complements the otherwise static IAD framework. Path-dependency is effective in conceptualizing the kinds of relationships common in historical analyses. The shortcoming of the model, however, is that it fails to deliver clear explanations for why one path should persist while others fail. The course of development may be a result of determined government policy, a decision made by an individual or even a coincidence. In this study, those path-dependencies that have impact – positive or negative – on the current development and that constrain the available policy alternatives in the Russian forest sector are identified.

Model of transaction cost

The model of transaction cost complements the analysis of path-dependence and IAD framework. The model was mainly used in the article II.

Transaction cost may reveal the underlying reasons for institutional change resulted from the changes in the relative cost structures. In other words, it can be used to answer the question, why some institutional change has occurred. According to Eggertsson (1991) transaction costs in general terms are the costs that arise when "individuals exchange ownership rights to economic assets and enforce their exclusive rights". For example, most people, when buying or selling a stock must pay a commission to their broker; that commission is a transaction cost of doing the stock deal. Williamson (1981), building on the previous work of Coase (1960), defined transaction cost economics (TCE), which was one of the first times when the structure of firm was utilised in a theory. Besides the obvious transactions of selling and buying, the model also is referred to various economic and social interactions. Williamson's determinants for transacting are frequency, specificity, uncertainty, limited rationality and opportunistic behaviour. These determinants place TCE close to NIE, even though there are differences e.g., in rationality assumption.

Despite or perhaps because of the wealth of academic debate, there is no clear-cut definition of transaction cost. Transaction costs are however commonly referred to costs related to the acquisition of property rights and access to resources, the evaluation of resources and specification of property rights, the preparation of contracts and contract enforcement, and the protection of property rights.

At the level of individual, or alternatively at the level of a firm, Matthews (1986) suggests that transaction costs consist of arranging a contract *ex ante* and monitoring and enforcing *ex post* in contrast to production costs, which are the costs that originate from the execution of the contract. North (1990) provides an alternative view, which widens the concept of transaction: Institutional change is primarily a result of changes in relative prices and/or changes in preferences, the costliness of transacting being a primary reason for institutional change. Changes in relative prices acts as driving force for actors (political or economic) to adapt their knowledge and activities in order to acquire a new equilibrium. For example, significant increase in labour cost provides incentive for a profit making enterprise to design and adopt new technologies, which require less labour force, in order to cut down production costs.

At society level, transaction cost reflects the efficiency of the political and economic institutional framework that regulates transacting. Thus, the lower the costs, and conversely a more credible commitment, the more efficient the prevailing institutions are (Coase 1960).

North (1997) defines four major variables that define transaction costs: First, the cost of measuring (acquiring information) consists of defining physical dimension of the rights exchanged (e.g. the volume of timber to be harvested) but also the property rights dimensions of the exchange (rights defining uses, income to be derived). Second, the size of market determines whether personal or impersonal exchange takes place. In personal exchange, kinship ties, personal loyalty or repeated dealing constrain the behaviour of participants, whereas in impersonal exchange effective competition acts as an essential constraint reducing the cost of enforcement. Third, an efficient enforcement of agreements reduces opportunistic behaviour and shirking in exchange. The fourth variable, ideology, separates this approach from the neo-classical behavioural assumption of wealth maximisation. Ideology, consists of the subjective models individuals possess to explain and evaluate the world around them. Ideology plays an essential role in political choices but also is a key to individual choices that affect economic performance, the cost of measurement and enforcement in particular.

In this paper the transaction costs of the tenure holder in relation to the long-term forest lease are analysed. The focus is on the acquisition of tenure rights and access to resources, the specification of property rights in the emerging forest tenure system, and to lesser extent, the enforcement characteristics of rules and due security of property rights in forest tenures. Changing costs of timber production are considered in analysis only when it is a result of the changing rules.

Q-analysis

Collecting qualitative data on the attitudes of the managers of forest leasing companies, which act as tenants on state forest land in Northwest Russia, was carried out for the article IV, in which the Q-analysis was used.

There are many statistical methods that can be used for grouping the data and creating typologies: factor analysis, cluster analysis, discriminant analysis, and etc. All these methods have certain limitations as they usually deal with quantitative data, while the measurement of attitudes is of qualitative nature. For creating typologies of attitudes towards the *Forest Code of 2007* we chose to use the Q methodology – a tool – that provides a foundation for the systematic study of a person's viewpoints, opinions, beliefs, attitudes. Q methodology, in a sense, is an inversion of conventional factor analysis; it

correlates people instead of tests (Brown 2002). By correlating people, Q analysis gives information about similarities and differences in viewpoint on a particular subject. For analyzing the informal institutions, such as attitudes and culture, Q methodology is very useful tool.

Q-methodology has also been widely used in political sciences and resource management issues. Jacobson and Aaltio-Marjosola (2001) used Q methodology for a cross cultural study to capture the respondents perceptions in a context of traditions and other informal institutions. It has been implemented in analyzing forest policy and understanding perspectives of participants in forest management issues in USA and Canada (Steelman and Maguire 1999), as well as identifying types of private non-industrial forest owners (Kurtz *et al.* 1981). In the Russian forest sector, Q-methodology has been used in the pilot study of the attitudes of forest managers in the 1990s and for understanding the institutional change from the perspective of a forest enterprise in transition (Mashkina 1997), as well as analyzing the attitudes towards forest biodiversity among Russian forest managers (Blam *et al.* 2002).

Few of the studies in different countries used typologies specifically addressing the link between the objectives and values of forest owners and their actual forestry behaviour (Lunnan *et al.* 2006, Karppinen 1998). Reviewing the previous typologies and the literature on typologies for forest owners, Ni Dhubháin *et al.* (2007) analysed the links between the values, objectives and attitudes of forest owners, and their influence on their forestry behaviour and their engagement in entrepreneurial activity.

RESULTS

External factors: the constrains of the action arena

Biophysical conditions: Soviet legacy and the development of forest resources

The forest resources in Russia are the largest in the world accounting for 1.2 billion hectares and 82 billion m³ representing over 20% of the global forest land area (Rosleskhoz 2003). The annual allowable cut is 500 million m³ but the actual cuttings barely reach 150 million m³ which is a half of the cutting volumes taking place in the 1970s when the peak of industrial timber harvesting occurred (Pisarenko *et al.* 2001). Reasons for the low level of harvesting are diverse: the collapse of production and markets in the beginning of 1990s, lack of investments and due obsolete harvesting and processing technology. The problems of forest sector however are not only related to the markets and technology (article II). When taking into account infrastructure and economic limitations the accessible forest area diminishes considerably. One of the main reasons also is the location of the forest resources: almost 80% of the forest stock is located in the Asian part of Russia that is sparsely inhabited with less developed infrastructure (FAO/ECE 2003). The average transport distance of roundwood was 1 800 km (Niskanen *et al.* 2003). Technically, taking into account the physical and institutional barriers, 48% of the total volume and 45% of the total area of forests could be harvested (Rosleskhoz 2003). Backman (1994) argues that less than 40% of the total timber volume could be accessible in short to medium term. The estimation, however, turned out to be too optimistic when taking into account the persistence of complex and interdependent nature of the institutional and financial problems

of the forest sector and due slow pace of technological development. Niskanen et al. (2004) argue that when taking into account economic limitations only one third of the forest resources in Russia are considered accessible in long-term.

Besides the inaccessibility of forest resources the other determinant limiting forests' use is found from the previous and still partly existing patterns of forest use (article III). Regulation of forestry has long traditions in Russia: the legal base for the management and use of state forests was established in the 18th and 19th Centuries. However, the revolution in 1917 and the emerging planning economy gradually changed fundamentals of forest management.

The principles of Soviet command economy turned out to be incompatible with sustainable forestry practices. The concept of sustainability was abandoned in favour of production and the fulfilment of planned targets (Redko and Redko 2002). Algreve (1966) defines this 'hortative' feature of the central planning system as follows: "the soviet type of economy is not a planned economy pure and simple... the goal is the fulfilment and over fulfilment of the plan quotas and the reduction of the planned production costs". These principles resulted in over-harvestings occurring at regional levels while savings in timber production costs led to neglects in forest regeneration and execution of other silvicultural operations (Pisarenko and Strakhov 2004). As result there was decrease in the portion of conifer forests and correspondingly increase in deciduous forests. The local industries are poorly adapted to the continuous increase in hardwood forests: they still using mainly softwood as a raw material. The depletion of forest resources was acknowledged already in the 1970s, particularly in Northwest Russia (Eronen 1984). Transforming forest management system from extensive to intensive requires time and enormous investments not only in silviculture but also on infrastructure.

The impact of the changing rules to the actors' positions

The analysis of forest legislation reveals that the relations between these actors have been in constant change since the beginning of 1990s (article I). The analysis of power relations and due distribution of rights reveals two major trends taking place in the Russian forest sector during the last fifteen years: first, the continuous attempts to decentralise forest management, and second, diminishing state involvement in forestry and forest use.

The polity in the Soviet Union was formally a federation. The actual system of governance, however, was organised according to the principles of unitary state: political decision-making and the planning of economy were highly centralised (Sakwa 2002). The national system of forest management was extended from the centre to local level of administration. In the 1990s, the decision-making concerning forest use, i.e. the allocation of forest resources, was decentralised first to municipal authorities and later to regional governments (Table 3.).

Decentralisation of decision-making did not however yield anticipated economic results in terms of increase in public revenue or providing steady basis for long-term development (article II). Forest use rights were granted according to subjective criteria and at low prices to local enterprises. Petrov et al. (2004) argue that the close interplay of political and economic actors laid basis for the grey economy of the sector. An unbalanced distribution of rights and obligations also hampered the performance of sustainable management of forest resources: while economic decisions were made at local or regional levels, the federal level was responsible for forest management. A conflict of interests is evident

considering the division of rights and responsibilities. Economic decisions were made at local and regional levels, while the Federation as the owner of forests largely accounted for the costs of forest management (Moiseyev and Burdin 2003). This unbalanced situation worked against a sustainable forest management: forest management costs, covered mainly from the federal budget, exceeded two times the revenues from the forest use (Isaev and Korovin 2001). The *Forest Code of 2007* tackles the problem of unbalanced division of rights and obligations by delegating not only legislative and proprietary rights, but also forest management duties to the regional governments.

Attributes of the community: attitudes affecting the enforcement of formal rules

This chapter is devoted to the analysis of individual perceptions and attitudes towards the formal framework of forestry (article IV). Three ideal types of actors were identified in the analysis *Market promoters*, *Regionalists* and *Conservationists*.

There are several consensus statements that the types shared in relation to the new forest policy and the *Forest Code* in particular. Among the groups there was a strong confidence in positive future development: 89% of respondents are planning new investments, and in wood procurement through tenure 96% prefer long-term license to short-term permit. Also 96% of respondents believe that their company is still operating in the forest sector after 5 years. The privatisation of forests, however, did not receive strong support from respondents. The delegation of forest management duties to tenure right holders without compensation was opposed by the all groups. Similarly, all groups considered that the allocation of forest resources on the basis of price alone works against ecological sustainability of forestry.

The types identified differ in their attitudes towards the social obligations imposed to the tenure holders: Conservationists group was willing to continue to help of local communities while other two were strictly against the continuation of social programmes. *Conservationists* were more willing to preserve the features of the old forest management regime, including the preservation of state ownership in forests, than the other two groups. *Market promoters* welcomed market orientation but remain sceptical that the new law could improve leaseholders' property rights. Regionalists considered positive the decentralisation of decision-making powers to regional governments.

All the groups opposed the one-sided delegation of forest management costs to the leaseholder. This will constitute a major challenge in terms of the enforcement of the new rules adopted in the *Forest Code of 2007*. The intensification of forest management is unlikely reached if forest leasing companies are not committed to silvicultural obligations. At present, this commitment seems to be strikingly lacking. Situation could be improved by offering economic incentives, such as adjusted stumpage price, in turn for dutiful execution of silvicultural operations.

The observed ideal types and their attitudes may have different impacts on the law enforcement and consequently on the realisation of forest policy. If not properly acknowledged in policy-making, views and attitudes, particularly those objecting the emerging formal legal framework, may eventually emerge through social sharing and behaviour as informal institutions hindering the efficient implementation of forest policy.

Table 3. The Development of ownership and authority between the levels of government in the Russian forest sector (X = possession of authority).

Level of administration and administrative function		Main Principles of Forest Legislation, 1978	Main principles of forest legislation, 1993	Forest Code, 1997	Forest Code, 2007
Central/ Federal level	Ownership	x	x	x	x
	Law-drafting	x	x	x	x
	Forest allocation	x			
	Management	x	x	x	
	Control	x	x	x	x
Regional level	Ownership				
	Law-drafting			x	x
	Forest allocation			x	x
	Management				x
	Control				
Local level	Ownership				
	Law-drafting				
	Forest allocation		x		
	Management				
	Control				

Action arena:

The key actors in the Russian forest sector

This chapter is based on mainly to the Article I that has been up-dated in May and November, 2008.

At the Federal level, there are several organisations and institutions that have significant impact on forest policy. During the law-drafting the President of the Russian Federation and the Presidential Council were exceptionally active, in fact, the whole process was launched by the President Putin in 2002, and later the Council, albeit not liable for law-drafting even published its own draft (Article I). The impact of this draft, remains unclear, however, it took liberal attitude towards forest sector development. Officially, law-making was started by the Ministry of Natural Resources (MNR) soon to be replaced by the less conservative Ministry of Economic Development (MED). MED advocated market-oriented principles in the forest sector, such as the privatisation of forest resources and liberalisation of forest tenure right system with varied success (Article I). After the adoption of the *Forest Code*, the MNR, and after a transfer of authority in 2007, the Ministry of Agriculture (MA) became in charge for the implementation of new legislation, the preparation of complementary norms included, whereas the Ministry of Industry and Energy (*Minprom*) is responsible for conducting forest industry policies including the Strategy for Forest

Industries 2020. In 2007, a Council for Forest Sector Development led by vice Prime Minister Zubkov was established in order to coordinate issues incorporating both forestry and forest industries. Outside state agencies, a major political party United Russia (*Yedinaya Rossiya*) published a strategy document "Russian Forest", which is consistent with "Putin's plan for forest sector development" emphasising domestic processing and discontinuance of round wood exports (Yedinaya Rossiya 2007). This policy document has significance due to party's majority rule in the Federal Parliament (*Duma*). Outside state organisations, there are two significant pressure groups representing forest industries' interests, Union of Russian Lumbermen and Lumber Exporters and All-Russian association of Pulp and Paper Producers (*Bumprom*) of which at least the former has perceivably taken part in forest policy debate. Elsewhere, there also are several international and national non-governmental organisations, such as Greenpeace Russia, WWF, Biodiversity Conservation Center as well as local actors like Regional Public Nature Conservation Organisation of Karelia (SPOK) that campaign for conservation as part of forest policy agenda (Potapov *et al.* 2008)

The main actors that in concrete terms take part in the regulation and utilisation of forest resources in Russia are the MA and its subordinate *Rosleskhoz*, regional governments and private forest industries. In 2008, a decentralisation of the forest administration is started at regional level: regional offices of the federal forest administration are subordinated to regional governments and in local forest management units and the direct command chain, or the "federal power vertical", is divided into federal and regional administrations with looser administrative and financial relations (Figure 2.). The control of the use of natural resources, executed by the Federal Nature Supervision (*Rosprirodnadzor*), also is partly delegated to the regional governments. At local level *leskhoz*y are replaced by new forest districts, *lesnitsestvo*. It should be noted that *lesnitsestvo* that existed prior to 2008 was a grass-root level organisation of state forest management that was responsible for the organisation of silviculture has very little in common with its namesake established along with the adoption of the *Forest Code of 2007*. As defined in the Code, *lesnitsestvo* is an administrative body that administers state forest resources. The main tasks include the organisation of silviculture and forest use through contracting as well as control over their performance.

Along with the mass privatisation in the mid 1990s, the private forest industries emerged as one of the main actors of the Russian forest sector. Since then the definition of the division of duties between the private forest industries and the state has been one of the major issues in Russian forest policy. In the Soviet Union all means of production were owned by the state. The transition period introduced fundamental changes in relations between the state and industry. In the Soviet Union forest industries harvested and processed timber while state forestry organisations were responsible for silviculture. Moreover, local forest management units - *leskhoz*y - executed small-scale harvesting and processing that has created tension in relation between forestry and forest industries. This contradiction has partly endured in post-Soviet Russia because of the dual role of *leskhoz*y as manager and user of forests resources.

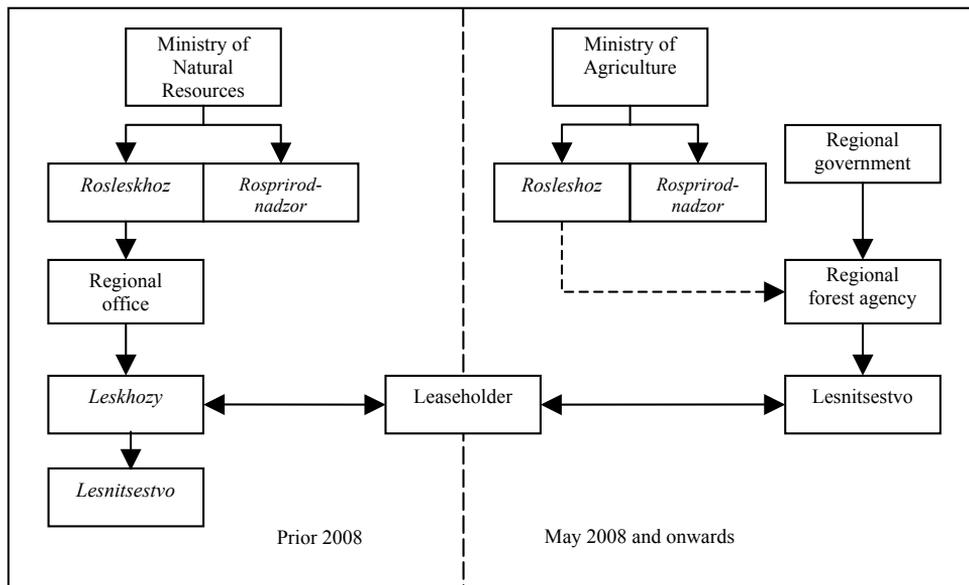


Figure 2. The structure of forest administration prior and after the reorganisation in 2008 (solid line indicates direct administrative authority and dash line indirect authority, e.g. through financing).

Even if the forest industries are here treated as one interest group, in reality, it does not form a natural unified homogenous group with mutual interests. The total number of companies operating in forest industries is over 22 000 and consequently the branch remains fragmented in terms of their policy goals. For example, small and large companies largely hold different positions in relation to government round wood export duty policy (article V): Large pulp and paper companies aim to protect domestic market from international competition and therefore are in favour of export duties, whereas a significant part small harvesting companies in Northwest Russia have exported timber at higher price than in the domestic market. The abolition of round wood export market would benefit at least in short-term large forest industries, while small harvesting companies will face more severe financial problems because of the decrease in demand and eventually in timber price. Petrov (personal communication with V.N. Petrov, 1.3.2006) argues that the preparation process of the *Forest Code of 2007* was untypically open in Russia; the key ministries and some large industrial companies openly lobbied for forests' privatisation. This goal was not realised, but nevertheless, the forest policy focuses strongly on the establishment of favourable conditions for the development and further consolidation of forest industries.

The institutional organisation of forest tenure

This chapter is based primarily on the article II.

According to the *Forest Code of 2007*, forest lease is the main form of industrial forest use in Russia: timber removal from all leased forests accounts for 66 per cent of all industrial harvesting. Forest lease is based on the contract between the private leaseholder

and the state owning the forest represented by a local forest administration body (in 2008, *lesnitsestvo*, replaced *leskhozy* as the public body of the local forest management). The maximum lease period is for 49 years. The length as well as the other terms of the contract, including price, are determined in an open competition. Prior to 2007, direct administrative allocation of forest use rights for five years or less was possible. In 2004, 54% of leases were concluded for 5 years without any competition. Consequently, the price of timber may be less than a half of the price determined in open auction. The number of short-term agreements is decreasing fast. The responsibilities of the leaseholder are determined in the lease contract. Usually, the leaseholder is to take part in the execution of silvicultural operations. There, are however, significant changes between regions. For example, leaseholders executed 25% of seed planting in Novgorod, while respective figures were 52% in Leningrad region and 91% in and Karelia. The result does not support the argument that longer tenure alone encourages the tenure holder to participate silviculture since the lease contracts are in average shorter in Karelia than in other two regions. The *Forest Code of 2007* changes in fundamental way the relations between the forest owner and tenant by delegating all forest management obligations, including cost, to the leaseholder.

The area of leased forest land is increasing. In 2005, the leased forest area in Northwest Russia increased by 12% (FGUP *Roslesinform* 2006). In Karelia and Vologda, over 70% of all timber removals were from leased forest areas representing the highest figures in Russia (Vasin, 2003). Forest land under lease accounts for 8% of the total forest land in Russia. The share is higher, 37%, in Northwest Russia (Table 5). The respective figures are significantly higher in exploitable forests, i.e. forests outside preservation areas, protective zones, reserve forests and areas not covered by growing stock. In many regions, leased forest area even exceeds exploitable forest area indicating scarcities in forest resources suitable for industrial utilisation. There is a complex normative system regulating the terms of forest lease consisting of federal legislation and policies, regional regulation as well as the interaction of the physical forest resources, market and regional socio-economic conditions. The analysis of the institutional framework reveals several inconsistencies in the formal regulation of the forest lease (Table 4). the *Forest Code of 2007* changes significantly the role of *leskhozy* that will transformed from a state management organisation to a state-owned company with a main function as contractor of forestry operations and limited logging.

Outcomes

Economic sustainability of forestry

This chapter is largely based on the article III and it focuses on the institutional aspects of the public financing of forestry.

The competitiveness of Russian forest industries has largely based on cheap raw material. The price of timber, or stumpage, which is paid based on agreed upon unit prices multiplied with cutting volume (roubles/m³) is up to 10% of companies' timber production cost, including harvesting, transportation, labour etc. (Petrov 2004). This relative share has remained at the same level since the Soviet period. The average level of timber sold at administrative reserve prices is 44 roubles/m³ and the of auction price 106 roubles/m³ in 2007 (Rosleskhoz 2008a). According to the annual average exchange rate, one euro equalled to 35.02 roubles in 2007 (European Central Bank 2009). In general, stumpage

level has significant impact on the economic sustainability of forestry. In Russian conditions only a considerable rise in timber price, e.g. doubling or trebling, would significantly affect timber production cost structure, which is primarily affected by high costs of harvesting, transport and infrastructure.

Following the Constitutional principles of joint-management of forests, the financial system of forestry is based on sharing the costs and revenue between the federal and regional governments. Prior to 2003, the financial balance of forestry was negative but afterwards the revenue has exceeded the costs (Figure 3). The reason for better financial situation of forestry is not found from increase in budget funding that has remained stable but rather from increase in off-budgetary collection of income (Figure 4.).

The sharp increase in forest management costs together with a relatively low stumpage prices and insufficient budget financing have made the forest administration dependent on off-budgetary funding: over 60% of the total public financing of forest management was generated from business activities carried out by *leskhozy*. The major source of income originates from the selling of timber from intermediate cuttings: in 2006, *leskhozy* harvested approximately 50 million m³ accounting for one third of the total cuttings (Petrov 2007). *Leskhozy*, which were freed from stumpage and sales taxes, have competitive advantages in timber market in comparison to private business operators.

Table 4. Institutional inconsistencies that hinder the establishment of open market of the long-term forest use in Russia.

Constitutional level:

- prevalence of unpredictable and short-sighted goal-setting of economic policies
 - Discrepancies between federal and regional policies that regulate the economic development and forest use
 - ambiguous delineation of powers between administrative levels
 - lack of credible commitment to property rights by the administration
-

Collective-choice level:

- contractual terms of lease conflict with the existing legal framework
 - the current system of forest allocation lacks transparency
 - administrative barriers in the organisation of forest use limit leaseholder's access to market
 - *leskhozy* have a dual role in the forest sector as forest administrator and market actor
-

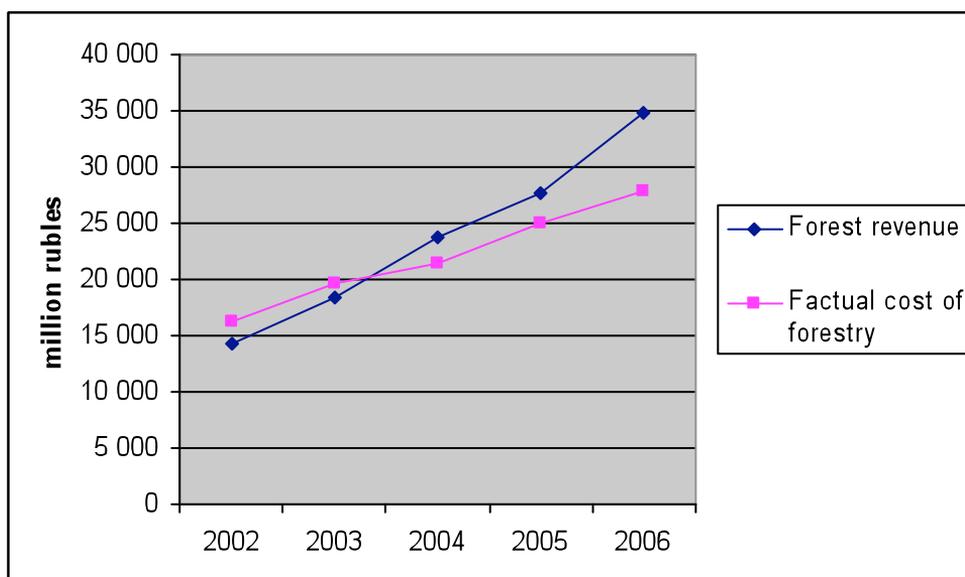
Operational level:

- investments in informal relations and social capital at the expense of technological improvement
 - weak commitment to the implementation of sustainable forestry
 - low level of new private investments
-

Table 5. Forest lease in Northwest Russia, Kaliningrad excluded, as 31.12.2005 (the share of leased forests within categories is given in brackets) (Source: www.roslesinforg.ru).

	Leased area, 1 000 ha	Forest Fond area, 1 000 ha (%)	Exploitable forest area, 1 000 ha (%)
<i>North-West Federal District</i>	42 497	116 360 (37)	56 902 (28)
Leningrad oblast	42 497	5 594 (68)	2 668 (75)
Republic of Karelia	3 802	14 843 (74)	7 844 (143)
Republic of Komi	10 928	38 873 (14)	18 489 (139)
Archangel oblast	5 443	28 768 (55)	15 556 (29)
Vologda oblast	15 721	11 636 (35)	6 446 (101)
Murmansk oblast	4 022	9 832 (5)	2 104 (62)
Novgorod oblast	522	4 077 (41)	2 753 (25)
Pskov oblast	1 654	2 436 (17)	860 (60)

Figure 3. The dynamics of state revenue from forest use and the cost of forest management (source: Ministry of Natural Resources 2007).



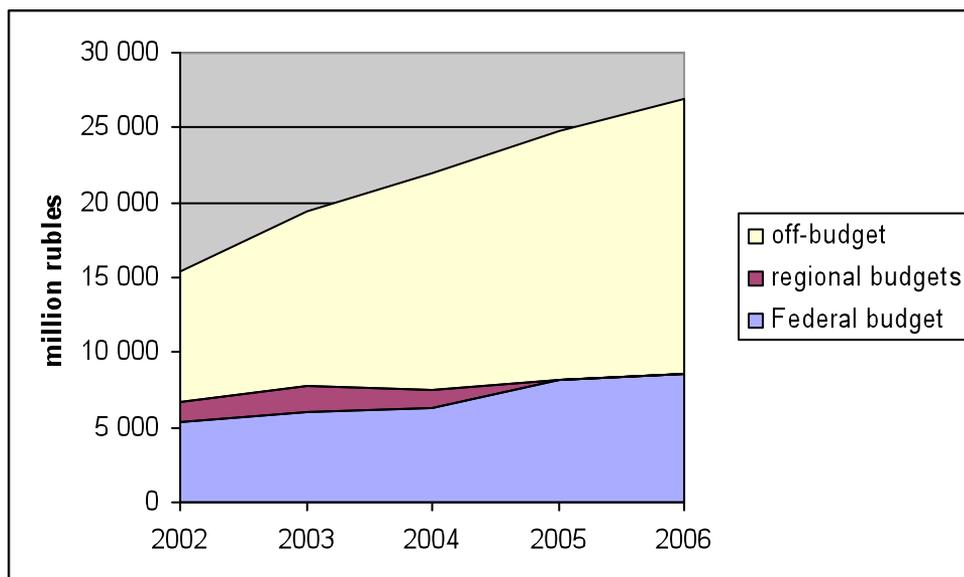


Figure 4. The structure of the public financing of forestry in Russia (source: Ministry of Natural Resources 2007).

In 2008, the procedure of self-financing ended. This means that in the future two thirds of the public funding of forestry must be covered from elsewhere. Filling this gap is a major challenge for the state. Principally, it can be done either by increasing income from forests or by cutting the costs of forestry. Sharp increase in forest revenue, i.e. stumpage received from forest use is unlikely to happen in the near future as is significant raise of budget financing. Cutting forestry costs could be achieved by reducing input in silviculture. This, on the other hand, contradicts the fulcrum of forest policy, i.e. intensification of forest management, and therefore, also is unlikely solution. The only viable option hence is the transfer of silvicultural costs to the private sector actors, which in turn is strongly objected by forest leasing companies (Article IV).

The key reform of the forest administration is to separate business operations from property management and control functions: public forest management organisations can no longer create income from business operations. All harvesting and silvicultural operations are executed either by leaseholders, or by private or state owned forest management (the former *leskhozy*) organisations through contracting.

At the state level, the economic balance of forestry and forest use has been positive largely because of the lack of investments in forestry and infrastructure supporting production. However, the analysis of the distribution of costs at the federal and regional levels result in different outcome: the Federal government as the owner of forests returns 20% more back to forest management than it receives from forest use payments. For the Federal government costs related to forests are larger than revenues. Instead, regional governments return only 35% of the forest revenue back to forestry. Since 2005, all forest management costs were directed to the Federal budget and the *Forest Code of 2007* consolidated the centralised system of financing (Figure 5). The revenue collected from regions is allocated to the federal budget, from which earmarked subsidies to cover the cost

of forest management are distributed back to the regional forest management organisations based on regional forest resources' biological and silvicultural attributes, as well as socio-economic factors.

Centralised financing scheme with subsidies in that way increases equality among the regions. However, the flipside of the coin is that it discourages further rationalisation of forest management activities. However, the central government may upon consideration encourage regions in efficient governance of forest by providing incentives. For example, the Karelian government receives back 25% of the forest revenue collected from the region (Vladimir Yuriev, personal communication 22.5.2008).

The federal government is introducing a new forestry strategy, which will have significant impact on the economic relations between the owner and forest tenure holders. First, a state compensation is planned to cover the leaseholders' costs of regeneration as well as part of the road construction cost. However, at the time of writing, there are no indications of such plans. Second, the forest use payments are quadrupled by administrative means from the current level, from 44 roubles to 140 roubles per cubic meter (from 1.3 to 4 €/m³) (Rosleskhov 2008b). These measures are targeted to establish economic balance in forestry because the revenue from forest use covered only 51% of the costs of forest management.

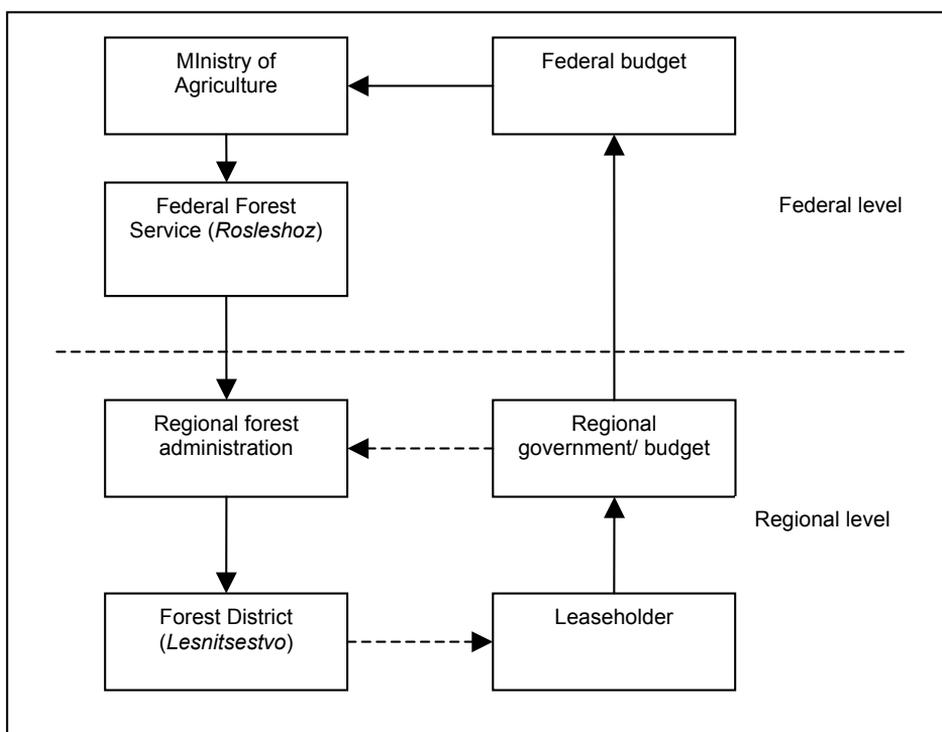


Figure 5. The financial scheme of the public financing of forestry according to the Forest Code of the Russian Federation, 2007 (solid arrows indicate formal financial flows according to legislation and dashed arrows potential financial flow).

It can be concluded that in terms of actual money flows, the sustainability of the state forest lands have just in recent years achieved. However, as stated above, the silvicultural costs, let alone investments in forest lands, are minimised and economic sustainability maintaining the productive capacity of forests is yet to be attained.

A comparison of property rights to forests between British Columbia and Russia

To have a wider perspective on various arrangements of property rights to forests, the analysis is enlarged to the Canadian British Columbia (BC). A comparison of property rights to forests was carried out by analysing the arrangement of ownership, control, management and the establishment of forest use payments (article V).

Public ownership of forests is predominant both in BC and Russia. In Canada as a whole, however, there are significant differences between the provinces in ownership structure consisting of federal, provincial, territorial and private forests. In BC, the majority, altogether 96% of forest land, is publicly owned belonging to the provincial government, whereas, in Russia, the federal government has a monopoly position in forest ownership (Table 6). Despite the prevailing public ownership, the distribution of property rights to forests has distinctive differences. In respect with the governance of forest resources, the Canadian forest management system is closely bound with provincial ownership. In Russia, on the other hand, the governance is based on the joint-management between the national and regional levels of government. Because of the vague wording of the Constitution and the supportive legislative, de facto division of legislative power and administrative tasks has been in transition since the beginning of the 1990s.

In BC, all rights are concentrated to the provincial government, which also is responsible for policy-making, forest management and the control of forest related activities. The role of the national government is narrowed to the establishment of the preconditions for sustainable forestry by facilitating national consensus building and relevant research and education (Haley and Nelson 2006). This institutional arrangement provides an unambiguous and comprehensible framework for policy-making and resource management linking forestry closely to regional economy. In Russia, the multilevel governance between the national and sub-national governments is the key principle of resource management. Sharing the rights and responsibilities has been difficult, and consequently the division of duties has remained obscure. This has also hampered the strategic planning of forest policy at national and regional levels as well as the integration of forestry regulated by the national government to regional economies (Moiseyev 2002). The *Forest Code of 2007* nevertheless continues the tradition of power sharing. However, a linkage between forestry and other branches of regional economy is facilitated more efficiently than in previous legislation due to the decentralisation of forest management to the regional governments that also receive a right to plan and implement regional forest policies.

Forest use on public forest lands is organised through various tenures both in Russia and BC. In BC, there are eleven types of tenures that differ from short-term cutting permits to long-term tree farm licences up to 25 years (Wang and van Kooten 2001). The key principle of tenures is that long-term licences involve considerable forest management responsibilities.

Table 6. The division property rights to forests between the central and sub-national governments in Russia and in provincial forests of the Canadian British Columbia.

	Function	British Columbia	Russia
National level	Ownership		x
	Control		x
	Management		
	Establishment of forest use payments		x
Sub-national level	Ownership	x	
	Control	x	x
	Management	x	x
	Establishment of forest use payments	x	x

In Russia, forest tenure system introduced along with the *Forest Code of 2007* is more simplified: harvesting permit is for one year or less, while forest lease license with full management responsibilities varies between 10 to 49 years. Previously prevailed form of forest tenure, the short-term leases from one to five years that were generally granted without open competition, is now disestablished. The determination of payments of forest use rights in both countries is a mixed model of markets and administrative regulation. In Canada, market information from auctions is used to formulate tenure fees for forest areas with limited or nonexistent competition. In Russia, administratively determined minimum prices that cannot be underbid are used as starting points in auctions. It has been argued in the United States in particular that through regulation timber prices in Canada and BC are kept artificially low, while on the other hand, researchers have argued that low stumpage simply reflects higher costs of accessing remote forest areas, costly harvesting and the long distances of transportation (Sedjo 2006). Similarly, in Russia the price of timber has increased slowly and in some areas, such as in Archangel, the price development has been even negative lately (Rosleskhoz 2007).

DISCUSSION

The main goal of this study was to reveal those reasons why forest policy seems to have failed to improve effectively the development of the forest sector in Russia. For this purpose, the analysis of property rights to forests was utilised.

The main hypothesis of this study was that ill-defined property rights are one of the main reasons for the current forest sector problems in Russia. Findings support this argument. Since the beginning of the 1990s forest policy there has been a constant search for “proprietor” for Russian forests. Proprietary rights are crucial from the point of view of resource management. Findings also seem to support the argument that only complete and well-defined property rights to forest resources, or to any other physical property, can facilitate sustainable and efficient governance in long-term perspective. However, this does not necessarily mean that a large-scale privatisation of forest resources would provide

solution to current problems. As argued by Ostrom and Hess (2007) there are no panaceas, thus sustainable management of natural resources can be achieved under various and often incomplete property rights regimes. This is also possible in Russian forests that as a common-pool resource are part of the state property regime. This without a doubt requires a well-defined and transparent distribution of rights and related obligations in comparison to current *de facto* situation in the Russian forest sector.

The issue is closely connected to the political system in Russia. Hahn (2005) points out that “the success or failure of Russia’s into a stable state with viable markets and democracy will depend much on the establishment of balanced and effective federal system”. The problem is the lack of such experience and knowledge that is needed to develop national identity, democratize, establish a market economy and build a state simultaneously (Hahn 2005). This challenge is well-known also in the forest sector: in the 1990s there were several failed attempts of decentralisation that were followed by a phase of re-centralisation of all decision making powers (Article I). The *Forest Code of 2007* again introduced even more wide-scaled decentralisation of all property rights with the exception of alienation (Articles IV and V). Changes in power relations between the centre and periphery are typical for federal regimes, international experiences, however, show that it is possible to establish stable system of governance under federal regime (Gregerson et al. 2004).

The utilised IAD framework proves to be expedient when applied to the analysis of the property rights to forests in the Russian forest sector. The external factors identified as the physical attributes of forest resources, rules and institutions governing forestry operations as well as communal attributes constrain in significant way the current available actions of the participants of the studied action arena. Forests’ economic, infrastructure-related and institutional accessibility as well as rules-in-use all contribute to participants’ ability to utilise and benefit from forest resources. These restrictions are reflected in the formation of forest policy but also more fundamental federal policies and principles. Changes in forest policy and forest legislation also indicate that there are functioning feedback channels that connect action arena participants to collective-choice decision-making. Another question is if this feedback was converted into policies and rules that would correct the existing problems. This is one of the main challenges of forest policy, or any policy. From this point of view, forest policy in Russia during the last fifteen years appears to be a series of trials and errors. It is apparent that forest policy has suffered from the lack of clear goal-setting, which in turn has exacerbated the adoption of proper policy tools. It can be argued that this is to some extent unjustified judgement particularly if taken out of the context in which forest policy in Russia has been developed. Therefore, in any attempt to understand policy development it is necessary to take into account the underlying historical and institutional contexts that take shape as factors setting up but also constraining policy-making.

Historical development substantially affects the current available options in management and use of forest resources. Therefore, path-dependency model has explanatory capability: the identification of the previous courses of development helps to identify and expound bottlenecks hindering the current development. At least four distinctive development paths can be identified in the Russian forest sector: centralised ownership of forest resources, the state-driven forest management, the disintegration of forestry and forest industries and, the weak development of forest markets. All these partially interdependent factors do not contribute to the economically, socially and ecologically sustainable management of forest resources. The development of the Russian forest sector has been affected by at least two major turning points - first, the revolution in

1917, and second, the collapse of the Soviet Union in 1991. These points of discontinuity have altered the otherwise incremental nature of institutional development regulating forestry. Yet there are several path-dependencies that are inherited either from the Soviet Union or even earlier from the Tsarist Russia. During the Russian empire, forest ownership was concentrated to the upper echelons of the society (Giryayev 2003). The administration and management of forests was highly centralised and organised in bureaucratic manner (Redko and Redko 2002). Similarly, even national legislation contained very detailed instructions (Algvere 1966). The organisation of the use of forest resources was, however, based on market principles and forest management was economically viable, yet the long-term profitability was arguable since revenue was mainly obtained at the expense of silviculture (Ilyin 1999).

The soviet economic model restructured property rights to the core. On the other hand, the Soviet regime largely preserved the centralised system of forest management inherited from the Tsarist Russia. Furthermore, the state ownership was extended from forest ownership and forestry to the forest industries. The inclusive presence of the state was not however, beneficial for forest management. Within the state, the separation of silviculture from harvesting and timber processing broke the production chain in the forest sector that in turn contributed to the uncontrolled and unbalanced utilisation of forest resources (Algvere 1966). The coordination of forest management and the utilisation of forest resources was absent at any level of the government. Nominally, the activities in forests were strictly regulated. Nevertheless, the state forest management bodies, *leskhozy*, were unable to control or supervise the free-of-charge use of forest resources by large industrial conglomerates. The extensive utilisation of forests, because of active settlement and policies, reached new heights both in terms of volume and geographic expansion. The depletion of the volume and weakening of silvicultural condition of forest resources were reported from several regions subject to intensive industrial harvest including European Northwest, East Siberia, and the southern part of the Far East (Shvidenko and Nilsson 1998). The absence of market information about the relations of production costs and prices of wood raw material and final products resulted in inefficient operation models and extravagant utilisation of forest resources. The last fifteen year period has proved that the establishment of markets in forest use is extremely complex issue influenced by the path-dependences in terms of both formal and informal institutions.

The first ten years of the transition were featured with a resumption of the old patterns inherited from the Soviet period despite the rapid change of formal institutions. When entering the 1990s in the post-Soviet Russia, the privatisation and degradation of forest industries meant at least temporal balancing of power relations between forestry and forest industries. However, the collapse of industrial production soon resulted in decline in budget funding of forest administration. This affected negatively to the silvicultural condition of forests. Financial crisis and structural problems of the forest sector inherited from the Soviet period hindered any attempts to reform the sector efficiently. Under these circumstances, the intensification of forest management and modernisation of technologies could not be realistically achieved. The changes in the governance system cannot be achieved easily. Eggertsson (1991) argued that if there is no clear applicable operations model to replace the old system of governance, there is a great likelihood to revert back to old habits and models of operation. This seems to be the outcome of numerous institutional and administrative reforms of the 1990s. Therefore, evolution, i.e. the support of existing positive development paths, instead of revolution is suggested, since radical and precipitous changes are more likely to fail (Jakobson 2001). It is only in the 2000s when policies first

time are clearly aimed to reform the old structures of the sector: the administrative decentralisation of forest management, the reform of state forest administration at the local level and the privatisation of silviculture are all new features of the forest policy. These reforms have a long-term potential to support democratisation through facilitating the local decision-making, although not without risks.

The formal institutional framework regulating the forest sector has been going through several profound changes since the beginning of 1990s. While rapid changes have taken place for example in the legislation, the impacts on actual execution of everyday operations have remained low. The change of formal rules clearly is not enough to support wanted direction of development in the Russian forest sector. Besides the amendment of rules, a particular attention must be paid to their enforcement. Also, the external factors, biophysical conditions and the attributes of the community affecting the Russian forest sector must be taken into account when evaluating the outcomes of the new policy. The change in behaviour of the actors can be affected by the rules but more profound changes in attitudes and precepts take much longer to evolve. The change of these mental models of the participants is required in order to maintain sustainable development in long-term perspective (Mantzavinos et al. 2004). As noted before, informal institutions evolve slower than formal legal and economic framework and therefore constrain the change. On the one hand, this may be considered negative factor in terms of economic or other development, as certainly is the case when informal norms work against the principles of good governance, for example. However, the persistence of informal institutions - personal networks, habits and routines - maintain stability and predictability in society, and therefore, also contribute positively to the socio-economic interaction as a whole.

In the analysis of the current process of implementation of the forest law adopted in 2007 it is too early to form or form deeply analysed feedback that originates from the implementation of the new rules. However, the initial responses of the logging companies indicate that the re-distribution of the property rights that gives more management rights and duties to tenure-holding companies is not only welcomed. The unfairness observed is mainly due to the fact that all costs of forest management are unilaterally landed to the leaseholders. As pointed out by Libecap (1989) and North (1993), the institutional change, by changing the distribution of power and further benefits, creates opportunities for someone, as it may pose a threat to another. It appears that large vertically integrated forest companies are more capable to respond the requirements of the new legislation and therefore have relative advantage in comparison to small and medium sized companies. This concern seems to be largely shared in Russian forestry community (Moiseyev 2008) and studied group of harvesting enterprises (Article IV).

The high costs of transacting are one of the major sources directing institutional change in the Russian forest sector. The lack of transparent and functioning market in relation to the use and allocation of forest resources has affected the transaction costs. This is harmful for forest enterprises but also for the state owning the forests. Private companies already operate under market economy environment in their final product markets, especially those with export orientation (article IV). In this respect, there has been significant and relatively fast shift towards market orientation: when the attitudes of the current managers of harvesting enterprises in Northwest Russia are compared to the previous studies (Blam 2002) carried out almost ten years ago, the representatives seem to rely more on markets than in informal networks; companies have become aware of the hard financial constraints and operate according to them. Olsson (2008) presents similar observations from the Archangel region. Forest companies' market orientation underlines the urgent need for the

establishment of more efficient markets and better transparency to state regulated management and allocation of forest resources, too.

From the point of view of enterprise, the high transaction cost in relation to the allocation of forest resources comprises a bottleneck. The input market of round wood is far from market economy; the price of timber contains obligations that are not visible in the formal tendering. Allocation procedures consist of formal and informal institutional features that together increase the costs of transacting. More efforts are thus needed in measurement, i.e. the acquirement of information as well as bargaining. This has been done partly at the expense of technical development; even unprofitable companies are able to operate because of low cost structure and lack of competition and soft financial constrains. Gaddy and Ickes (2002) present a theory of virtual economy according to which even unprofitable companies in Russia are able to continue operating due to institutionally long distance to markets and financial subsidies provided by political decision-makers. One of the main features of the virtual economy is the close collaboration of local political and business leaders: local businesses support politicians by providing funding and employees as voters in return for subventions, such as tax relief, cheap energy or raw materials or administrative barriers blocking outside competition (Caddy and Ickes 2002). The features of virtual economy are particularly characteristic to regions with one-sided industrial structure, typical for many forest abundant regions in Northwest Russia. It can be argued however that in the forest sector, virtual economy characteristics as such are to some extent replaced by market behaviour and hard financial constrains. The evidence supporting the argument can be found from current problems fuelled by economic crisis: contrary to economic decline in the 1990s, forest companies' weakening financial situation has now resulted in steep staff reductions in Karelia, for example (Tolstyh 2009). The adoption of market orientation also was indicated in managers' attitudes promoting clearer rules to secure leaseholders' property rights in forest tenure (Article IV).

Efforts are still, however, needed for more transparent enforcement of rules and due reduction of transaction cost. Even forest allocation through open competition, like auctions, encompasses features of subjective valuation. The inclusion of social obligations to forest lease contracts is rather a custom than exception: all respondents with forest lease agreement carried out social responsibilities apart from rent and other formal payments required (article IV). The acceptance and fulfilment of obligations not defined in competition documents provide way to acquire and maintain access to forest resources. This is in line with Ribot and Peluso (2003), who point out that obscure property rights encourage companies to invest in informal networks and social relations in order to obtain and maintain access to resources.

The question of social responsibility in relation to forest tenure is intricate. It can be argued that social services provided by the leaseholders as such are needed, particularly in rural areas. The problem emerges from the lack of transparent principles that raise costs of transacting and further buyer's real acquisition price of timber, but also lower the revenue of the state owner. Niquidet *et al.* (2007) draw the same conclusion from BC by arguing that

Socioeconomic tenure conditions in fact reduced the resource rents collected by provincial government, and the abolishment of several conditions has been beneficial to the province and a gain in economic efficiency of forest tenure.

Similarly in Russia, high transaction costs are detrimental to those companies operating in the forest sector, but also equally to the state. The non-transparent rules of forest allocation reduce the direct revenue from forest use. The informal benefit sharing competes with the formal rules that direct forest revenue to federal and regional level. The situation could be improved by institutional change that acknowledges the local needs for timber revenue. Such a goal could be achieved by taxation allocating a part of forest revenue to the local governments. This would establish a formal linkage between forest use and the flow of benefits at local level, and consequently, contribute positively to the transparency of rules-in-use. Limited transparency in turn that in the Russian forest sector largely originates from the lack of determined and openly codified policies and the absence of predictable enforcement of rules create uncertainty that contributes to the low value of forest resources. Under these conditions, profit-making companies are unwilling to make long-term investments in production. The low price of timber as raw-material also discourages the rationalisation of production operations since short-term profits can be made even with low efficiency. In-long term, this situation however deteriorates competitiveness of the company.

The relation of property rights and investment behaviour can be applied even more so to silviculture. The motivation for investments depends on the expected security of property rights, i.e., the probability to benefit from the inputs. In boreal zone, in which forest resources grow relatively slow in commercial terms, the payback from investments in forest regeneration takes at least 30 years. Therefore, the risk of investment within poorly defined property rights remains exceptionally high. One way to increase stability is to provide long-term access to forests: the maximum period of lease in Russia is 49 years. In fact, this is twice as long as for example in BC. However, because of political and legal environment the length of the tenure does not alone provide protection against the changes in tenure provisions. For example, all existing contracts will be re-evaluated and contractual terms are harmonised with the new forest legislation. Therefore, the change of institutional framework can have impacts on the distribution of property rights between the owner and tenant that at the time of the conclusion the agreement are unforeseeable. A lot of efforts, including uplifted transparency, are thus needed to establish credible operational environment for forest use.

The Canadian experience suggests that monitored performance that forms the basis for renewal of tenure contract yields best results in terms of sustainable management of forests (article V). The creation of economic incentives also is likely to reduce the principal-agent problem between the state and the tenure holders. There are no such clearly formulated incentives included in the current legislation in Russia. One alternative approach here could be the introduction of deposit payment in relation to final felling in order to secure forest regeneration of good quality. Meanwhile, the lack of economic incentives together with poorly defined property rights comprise the main impediments for the establishment of intensified, economically and ecologically sustainable forest management, which is the key forest policy goal of the new Code. Also, the empirical evidence of the risks of sudden policy changes and/or unilateral decision-making weaken the stability needed for long-term investments. The comparison of BC system of property rights and forest tenure to the respective Russian system provides insights to the importance of external factors. The adoption of similar tenure rules is however unlikely to produce similar outcomes because of differences in the attributes of the community and the economic rules, i.e. the arrangement of property rights.

When considering property rights as bundle of rights and the institutional change that has taken place in post-Soviet Russia it is easy to argue that the federal regime adopted has not favoured the establishment of stable formal framework in the forest sector. The rapid pace of changes taking place in the relations between the central and regional government has to large extent worked against the sustainable management of forest. The balancing of rights and obligations in terms of forests is still on-going. In comparison to the former forest legislation, the distribution of rights and duties established along with the adoption of the *Forest Code of 2007* appears to be more balanced: along with legal and administrative decentralisation the respective duties have been decentralised too. However, the devoid of fiscal decentralisation and due *de facto* possession of political power implies that the central government is not, at least for a moment, handing all powers to the regional governments. However, based on consideration the central government may encourage financially regions in efficient governance of forest by providing incentives. For example, the Karelian government receives back 25% of the forest revenue collected from the region that is earmarked to forestry (Vladimir Yuriev, personal communication 22.5.2008).

It is clear that economically efficient and socially and ecologically sustainable management and use of forest resources can be achieved only if the all parties involved feel that they receive what they feel a fair amount of rights and benefits in exchange for the obligations.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

History matters! The impact of historical development is particularly strong in the Russian forest sector. The Soviet Union left behind a contradicting legacy that still constrains policy-making in contemporary Russia. The balancing of property rights to forests has become one of the main driving forces of the national forest policy development in post-Soviet Russia. The development of property rights to forests reflects politics and forest policy. Accordingly the following trends can be identified in forest policy in Russia:

- along with the adoption of the Federal polity, the power balance in the forest sector has been in constant state of flux (Article I);
- institutional and policy changes aim to facilitate the consolidation of the private forest industries and the establishment of new investments in the Russian forest sector (Articles II and III);
- under the state property regime, forest use and forest management are increasingly carried out through private long-term tenures (Article III);
- despite increased authority, private harvesting enterprise managers, partly due to the lack of economic incentives encouraging intensive forest management, do not unanimously favour the reforms of forest tenure introduced by the *Forest Code of 2007* (Article IV)
- the efficient governance of forest resources, contrast to BC, is hindered by vaguely defined and fragmented property rights to forest resources (Article V).

In conjunction with these trends the re-distribution of property rights to forests is going on in Russia. The state administration is shrinking in the forest sector in Russia, while more management responsibilities are delegated to the private sector. The reasoning for the

delegation is found from economic sustainability of forestry because forestry has been unprofitable to the Federation. The quest for stable and balanced arrangement of property rights to forest is still likely to continue. The net beneficiaries are the regional governments, and the private wood processing industries, which have benefited from the low price level of timber. The relative share of raw-material cost in the total timber production cost has remained at the same level than in the central planning system (Article III).

The ambiguity of authority between the levels of public administration is likely to continue because of the Constitutional setting, which leaves lot of room for future interpretation. While the distribution of powers within state bodies is in continuous cross-swell within the federal framework, there is a continuous trend to be found in the delineation of rights and obligations between the public and private sectors. The role of the state is diminishing in the forest sector (Article I). Industries using wood are gradually transforming from the extracting of timber to all-around managers of forest resources. This does not however mean that the public sector as a whole is totally standing aside from the forest sector, quite the contrary. While the central government's role in direct regulation of forests and use of forest resources is diminishing regional governments are taking lead as administrators of forest resources (Article III). This will facilitate the integration of separate forest sector policies at least on regional level, which in turn should create incentives for efficient and sustainable management of forests.

One of the major bottlenecks of the development can be found from the arrangement of forest tenure. Despite the renewal of forest lease rules, there are still uncertainties related to property rights from the point of view of tenure right holder. This hinders investments in forest land and in forest roads in particular. Understandable, private tenure holders are reluctant to build roads when the formal framework protecting their investment is still uncertain. On the other hand, from the point of view of the state, the low current level of stumpage, i.e. the price of the right to harvest timber and consequently low accumulation of forest revenue is unlikely to motivate new large-scale state funded investment programs. The assessment of various sets of policy tools that could be used to encourage private investments in public forest lands is still not completed to be used in practice. A comparative analysis of these policy instruments could be useful not only in academic circles but also from the point of view of further practical arrangement and regulation of forest tenures in Russia. Other topics that have emerged during this research and could significantly contribute to the further understanding of the forest policy and the role of property rights to forests in the development, include: the analysis of the established and emerging regional models of forests' governance in Russia, the analysis of the new forest management planning system with relation to international definitions of the national and regional forest programs and related participatory planning procedures, the enforcement of the new forest legislation and *de facto* delineation of authority between the levels of government.

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