

1 **Russian Forest Management Under the Ministry of Natural Resources:**

2 A historical review of Russian forest management and a look to the future

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Executive Summary

This manuscript discusses the historical context and current state of forest management in the Russian Federation, and the establishment of forest management authority by the Ministry of Natural Resources, its duties, mandates, and organizational hierarchy as it applies to forest management. It will examine the implications to forest management in relation to Russia's role in global climate change issues, harvest rates in the boreal forest, and targets for reforestation, fire fighting, and infrastructure development. The evolution of a market economy in Russia will be directly linked to the potential success of these forest management goals.

In brief, it is expected that forest management activities during the coming decades will show a greater emphasis on timber extraction and fire protection of highly valued timber stands. Forest regeneration efforts will most likely be scaled back considerably, while non-forest-regeneration silvicultural treatments will be used only to a limited extent. Forest complex infrastructure developments, such as roads, will be concentrated to those areas which are juxtaposed with significant deposits of oil, gas, or commercially valuable minerals.

The shadow economy of Russia, coupled with the top-down edicts from the President, will continue to hamper the realization of a Russian market economy which in turn will stifle the emergence of a commercial forest products sector that might have been a mechanism to assist in the development of a sustainable forest products sector.

Forest policy, dictated by decrees of the President of the Russian Federation, will continue to guide rules and conventions to a much greater extent than the guarantees of the constitution, promises by the Duma, or well thought-out guidelines written as part of policy regulations.

1 **The Historical Context of Russian Forest Policy**

2 The earliest nomadic settlers of European Russia were called "Dreavlyane"; the people of
3 the forest. These early Slavs settled the forests and marshes while placing a spiritualist value on
4 the great oaks of the woodlands (Krylov 1984). By the beginning of the 10th century, laws and
5 regulations that governed various ownership rights for forestry were in place and even carried
6 the penalty of death for illegal timber harvest on the Czar's forestlands. The Russian Law, Long
7 Edition (circa 1209) contained 121 articles, and of those, 10 were devoted to forestry (Teplyakov
8 *et al.* 1998). During the 15th through the 17th centuries, the main uses of the Russian forests
9 included wood products, fishing, hunting, apiaries, and potash production. During the middle of
10 the 16th century, under the leadership of Ivan the Great (A.K.A. Ivan the Terrible) the
11 construction of shipbuilding yards and lumber mills in the northwestern territories of Russia was
12 made a priority, placing greater utilization pressures on the forests of that region (Teplyakov
13 1992).

14 By 1649, Czar Aleksei Mikhailovich had adopted regulations which contained the previous
15 body of laws into a legal document which confirmed six different and unique forms of forest
16 ownership, differentiating between private, public, and Czar owned forestlands (Teplyakov
17 1992). Czar Aleksei Mikhailovich and later his son, Czar Peter the Great (A.K.A. Peter I)
18 formalized the management of Russia's forestlands in the Code of Russia in the late 17th
19 century (Krylov 1978). Interestingly, their justification for managing the forests was tied directly
20 to the national defense, dictating the need for a stable supply of mast wood for military sailing
21 ships, and to allow for the construction of abatis (trees felled chest high) to thwart the
22 advancement of attacking cavalry (Arnold 1895, Krylov 1978, Redko 1981, Tikhonov 1984,
23 Bobrov 1990, Teplyakov *et al.* 1998).

24 As early as 1702, Czar Peter the Great sent a manifesto throughout Europe inviting various
25 specialists, including foresters, to come to Russia (Teplyakov *et al.* 1998); the great Czar made
26 it no secret that he wished Russia to be a member of the European Community and this open

1 invitation was one step toward that end. The defining moment in early Russian forest
2 management occurred when Peter I wrote a decree (circa 1703) requiring an inventory of all
3 forests at a distance of 50 verst (53.0 km, 32.9 mi.) from big rivers and 20 verst (21.2 km, 13.2
4 mi.) from small ones. Within these boundaries, it was illegal to cut species of oak (*Quercus*
5 spp.), maple (*Acer* spp.), elm (*Ulmus* spp.), larch (*Larix* spp.), and pine (*Pinus* spp.) with the
6 stem diameter of 12 vershkov (53.3 cm, 21 inches) or greater. Fines were levied for violations of
7 the decree: (1) for cutting any tree but oak it equaled 10 rubles, and (2) for cutting an oak and a
8 significant amount of other species capital punishment was an accepted penalty (Krylov 1978).
9 Considering that forestlands outside this waterway buffer zone were economically infeasible,
10 with this decree, Czar Peter I had nationalized practically all mature forestlands in Russian
11 territory.

12 Over the next 2 years, the intended effect was seen across the countryside as timber
13 harvests for personal uses were severely curtailed but the secondary effect was unintentional as
14 production of horse carts, wagons, and mills nearly stopped. By 1705, the Czar lifted severe
15 sentences for the construction of the listed items, but shipbuilding by the private sector was still
16 forbidden (Krylov 1978, Redko and Shlapak 1993).

17 While the British flag still waved over the American Colonies and the Broad Arrow of the
18 British Crown identified the King's Trees (national assets) in the New World of North America
19 (Cameron 1928), Czar Peter the Great created the Forest Service of Russia (1719). Given the
20 military significance of forests in the early 18th century, it is no surprise that this first forest
21 service of Russia was formed as a division of the Russian Navy. The Admiralty Collegium was
22 uniquely Russian in its organization, although Czar Peter I ordered the foresters in its ranks to
23 bear German titles such as *forstmeister*, *waldmeister*, and *ober waldmeister* (Centennial of the
24 Forest Department 1898, Krylov 1978, Teplyakov *et al.* 1998).

1 Within three years of creating a forest management division as part of the government, the
2 Czar revisited the issue of commercial shipbuilding. He issued a new decree (February 7, 1722)
3 stating:

4 "...since local people misunderstood the tzar's intentions who sent a
5 message of the need to preserve forests, it was not intended to limit
6 the people in their desire to build ships, it is allowed now for the
7 people of Zaonezhye [Karelia–northwestern Russia] to cut trees for the needs
8 of ship building, but not for fire wood or any other small needs" (Krylov
9 1978).

10 In contrast to the scientific efforts of the time, there was a national backlash in forest
11 management following the death of Czar Peter I. Four Russian rulers would follow Peter the
12 Great during 16 years (1725-1741). Empress Catherine I, issued a decree on December 30,
13 1726, stating that due to the negative impacts to peasants of limiting forest harvest activities, all
14 *Waldmeister* (Forest Management) offices were to be abolished. The responsibility of forest
15 supervision was assigned to land owners, village elders and stewards in each region. Forest
16 management decisions and administrative functions were transferred to the authority of
17 provincial governors and army commanders. That decree opened the door to increased
18 utilization of mature forests and amplified revenues to the national treasury from stumpage fees
19 (Arnold 1895, Krylov 1978).

20 The daughter of Czar Peter I, Empress Elizabeth Petrovna in 1741 began her twenty year
21 rule of Russia by adopting all of the decrees of her father, including all of those related to
22 forestry (Teplyakov *et al.* 1998). She reestablished all of the Forest Management offices in her
23 realm and nationalized all forestlands. Her efforts placed more importance on implementing
24 scientifically based forest management options as opposed to the mercantilist style of forest
25 management which was observed during the rule of her four predecessors.

1 Two years following the death of Empress Elizabeth Petrovna, Empress Catherine II
2 (A.K.A. Catherine the Great) took over rule of Russia⁴. In harmony with the continuous ebb and
3 flow of forest guidelines in Russia, she greatly liberalized forest policy reversing her
4 predecessor's nationalization of forest resources and declaring that the maximization of
5 economic returns from forest ownership should be the guiding policy of forestry in Russia
6 (Kopylova 1999a). She brought to an end regulations on forest protection and created the
7 mechanisms for private ownership of forestlands. The reaction by the countryside was to
8 increase timber harvest volumes. The government's response was a *laissez faire* attitude that
9 lacked regulations and procedures to ensure forest sustainability (Kopylova 1999a).

10 Emperor Paul I (1796-1801), issued a decree on May 26, 1798, reinitiating the
11 management of all public forests to be carried out by forest masters and rangers appointed by
12 the Admiralty Board (Centennial of the Forest Department 1898). In so doing he fulfilled his role
13 in maintaining the ebb and flow of forest management policy in Russia.

14 The basic structure of the Russian Forest Service would be modified significantly only four
15 times during the 300 year Romanov Dynasty. By 1917, approximately 36% of all Russian
16 forests were under state management, with the remaining 64% held in private ownership
17 (Kopylova 1999a). After socialism became established in Russia, all of the land was transferred
18 back to state ownership (Carlsson 2000). During the Bolshevik regime, authority for forest
19 management would be reorganized twenty more times with three complete liquidations (1917-
20 1992) (Tepliyakov *et al.* 1998). In the absence of a market economy, the period of socialism in
21 Russia would be recalled as a period of unsustainable harvesting of forest resources that
22 reached even the most remote regions (Kopylova 1999a).

⁴ German born Peter III was Czar of Russia for one year (1761-1762) before he was dethroned and assassinated as a result of a coup d'état arranged by his wife, Catherine II. (Gorkin 1999).

1 Following the collapse of the USSR and the reinstatement of authority of the Russian
2 Federation on the land of Russia, the RFFS has been the primary and predominant forest fund
3 management agency. Still retaining state ownership of all lands in the Russian Federation, the
4 Russian government enacted numerous laws aimed at forest resource exploitation. The first
5 significant regulation to be implemented was the 1993 adoption of the "Principles of Forest
6 Legislation". The Russian economy and rule of law were still in a state of flux and it became
7 clear to Moscow that the centralized style of forest management called for in the legislation was
8 too restrictive (Kopylova 1999a).

9 By 1997, the Russian government passed the "Forest Code of Russian Federation". The
10 most noteworthy component of the 1997 legislation was the transference of forest management
11 authority from the centralized federal bureaucracy into the hands of a combined committee of
12 the subjects of the federation and the RFFS (Kopylova 1999a) (Chart 1). The legislation allowed
13 for property rights to be reallocated to private citizens and companies through leases (up to 49
14 years), concessions (up to 49 years), and short-term utilization (less than 1 year). Nevertheless,
15 in reality, the federal government has retained practical ownership of all forestlands and
16 agricultural lands of the federation leaving property rights a nebulous topic (Carlsson 2000).

17 It is important to recognize that in the historical context of the Russian forest policy, events
18 are plagued with constant change. For over 300 years the rulers of Russia have oscillated
19 between giving people private land ownership rights and then taking them completely away, it
20 did not matter if the ruling party was a Czar, Empress, General Secretary of the Communist
21 Party, or the duly elected President of the Federation. The trend has been to give a little and
22 then take it back. More often than not, political changes in Russian history gravitate to a central
23 theme of "taking one step forward, and two steps back" (from a political book by this name
24 written by Vladimir Ilych Ulyanov A.K.A. Lenin). For the Russian people, decisions from the top
25 of the political pyramid are unquestionably accepted as the ultimate argument in determining the
26 economic environment.

1 The Russian Federation has been a tempest of change during its most recent decade, and
2 even once-thought strongholds of stability have gone through significant transformations. It
3 should be no surprise then, that less than six months after his election, President Vladimir
4 Vladimirovich Putin, brought to an end the existence of the RFFS, the State Committee for
5 Environmental Protection, and other federal departments and transferred their authority to the
6 Ministry of Natural Resources (MNR) by Presidential Decree No. 867 on May 17, 2000
7 (Environmental News Service 2000). In this decree, the president also reaffirmed the absolute
8 authority of forestland ownership rights by the state in the Russian Federation, reversing the
9 previous policy of allowing decision-making influence by the subjects of the federation.

10 The MNR was a pre-existing organization of the Russian Federation that has historically
11 been the lead management agency for the nation's oil, gas, and mineral deposits (Vasenda
12 2001). Although environmental management restructuring at this scale has caught the attention
13 of many around the world, it is a significant concession that many of the people once employed
14 in the RFFS are now receiving their salary (albeit sometimes delayed) from the MNR.

15 **The Context of Forest Management Sciences in Russia**

16 **Historical**

17 In 1724, during the reign of Peter the Great, Russia's first forest economist Ivan Pososhkov
18 wrote a book titled "The Book on Scarcity and Wealth" where he pointed to the need for "rational
19 forest use", protection of forests from wild fires, and described the need for revision of forest
20 regeneration practices. His book was published only in 1842 (Arnold 1895). His works were
21 unique for the time of popular ideas on forestry (globally) that accentuated the notion that
22 forests, due to their vastness, failed to be valuable assets which anyone was free to exploit
23 (Cameron 1928). However, these works were granted political grace in light of the tendency of
24 the Czar to support the science and practices of forestry. The decade following publication of
25 this book would be recognized as the time of awakening of professional forestry in Russia as
26 the first forest plantations were established. Soon after the death of Peter the Great, one of

1 Russia's first silviculturalists, Fokel, created the Lindulov forest plantation of Siberian larch (*Larix*
2 *sibirica*) which has been preserved to this day in memory of the "Forestry Czar – Peter I"
3 (Melekhov 1957, Tikhonov 1984, Redko 1993).

4 Bolotov was considered the father of Russian silviculture. He published an article entitled
5 "Cutting, Improvement, and Regeneration of Forests" in 1766. By 1814, regeneration
6 regulations would be entered into state-approved forest management practices for the first time
7 by requiring that all advanced regeneration on the harvested site already at a height of 8.8 cm
8 (3.5 in) be protected: "not to log and make every effort to preserve from damage" (Terinov
9 1969). Malgin (1841) pointed out the benefits of leaving pine (during thinning) in scattered
10 leave-tree groups in forests dominated by spruce in order to increase overall wind resistance of
11 the stand. Russian scientist and forestry leader, Alexander Teploukhov, in the mid-1800s
12 published numerous articles concerning forest management and silviculture. He criticized
13 German monocultures, pointed to the need for forest stand diversification to improve soil
14 recruitment, and offered demonstrations of tree planting as being far superior to seeding cut or
15 burnt sites (Melekhov 1957, Tikhonov 1984, Teplyakov *et al.* 1998). Teploukhov also advanced
16 the concept of forest fire management to include the necessity of slash management on sites
17 following logging (Teploukhov 1850).

18 The Society for the Advancement of Forest Management was created in 1832 as a means
19 of disseminating knowledge concerning the advancement of forest management in Russia. This
20 national publication, written in Russian, was the first and only publication of its time to advocate
21 forestry sciences as it tackled national issues from Odessa to St. Petersburg, and from Crimea
22 to Siberia (Beilin 1962, Tikhonov 1984). In one particular article by Kotta, very advanced ideas
23 of agroforestry were developed and put into practice. In extension of the notion of improving
24 Russian silviculture, the "All Russia Forestry Congress" was convened annually to discuss
25 issues of silviculture and forest management.

1 By the end of the 19th century, the body of forest science in Russia had surpassed forestry
2 in West European countries in terms of developing the soil sciences, implementing thinning as a
3 silvicultural tool, and applying mixed forest regeneration to enhance forest resilience against
4 pests and fire (Melekhov 1957, Tikhonov 1984). In 1904, the forestry textbook "Silviculture" was
5 published as a culmination of the forestry sciences up to that time. It was one of the first
6 textbooks on forestry that detailed the concept of shade tolerance (shadow tolerant species)
7 and how all trees, even shadow tolerant trees are slowed in growth as a result of excess shade
8 (Turskii 1904).

9 Professor Mikhail Mikhailovich Orlov analyzed international and Russian experiences at the
10 beginning of the 20th century. He wrote that it seemed strange to him that the country of Russia,
11 with about a half of its territory covered by forests, did not place forest management and forestry
12 in an "appropriate place in the country's overall management system". He observed that usually,
13 forestry became a part of the most powerful and influential branch of the national economy,
14 even when the respective countries did not care about their forests and forest management.
15 With this in mind, Orlov wrote "... Forestry of Russia – USSR – Russian Federation – is
16 unique... and management systems should be more specific." He recommended and
17 scientifically justified that management and regulation systems should be modified by
18 introducing market elements (khozraschet) into the Russian forest management system. The
19 first step of the reform he recommended was to give freedom of forest management practices to
20 managers. But, he warned, this freedom must be bestowed with responsibility for all activities
21 (Orlov 1930).

22 Russia and western Europe mutually benefited from the exchange of ideas and forest
23 practices for centuries. At the beginning of the 20th century, there were even accounts of
24 students from England learning Russian in order to study soil sciences directly from
25 Dokuchayev's original works on the formation of soils (Teplyakov *et al.* 1998). The events of the
26 20th century would artificially separate Russia from the rest of the developed world as the Lenin-

1 Stalin led governments would introduce xenophobic practices eliminating all cross-cultural
2 exchanges, even scientific ones. Research into Russian forestry did not stop during the period
3 of socialism, it continued to be innovative and highly prioritized with noteworthy
4 accomplishments (Teplyakov 1994, Kopylova 1999c). Broader exploitation and intensive
5 management of forestlands would become the theme of forestry sciences in the USSR during
6 the period 1917-1989 (Krankina & Dixon 1992). Russian forest management diverged from the
7 forestry sciences of western Europe and the United States. Even 10 years after the collapse of
8 the Soviet Union, scientists are still reconciling the erudition of the two countries; each learning
9 from the other side.

10 **Current Conditions**

11 Today, approximately half of the forests of the Russian Federation are outside of the areas
12 of active management because of lacking infrastructure such as roads and rail linkages
13 between regions. This factor is singularly responsible for the majority of forest management
14 challenges such as fire fighting, managing insect and disease outbreaks, artificial reforestation
15 practices, and realizing financial profits from forest management activities. Kopylova (1999b)
16 reported that when averaged over the long-term, about 1.0 million ha. (2.5 million ac.) each year
17 are destroyed by forest fires in the Russian Federation. During 2000, more than 18,000 forest
18 fires were ignited in the Russian boreal forest covering an area of 1.8 million ha. (4.4 million
19 ac.), an increase from the 1999 losses which totaled the annual average of 1.0 million ha. (2.5
20 million ac.) (MNR 2001). Pest infestations during 2000 in the Russian boreal forest impacted
21 approximately 2.6 million ha. (6.4 million ac.), while forest pathogens were a problem on an
22 additional 13.4 million ha. (33.1 million ac.) (MNR 2001).

23 Nilsson & Shvidenko (1998) reported that at the beginning of the 1990s, Russian forests
24 generated approximately 1,880 million m³ of gross growth per year. Roughly 966 million m³
25 (51%) of this growth was converted to net growth, while the remaining 914 million m³ (49%) was

1 lost to mortality. Much of this mortality could have been converted to salable products or
2 prevented completely with an improvement in basic infrastructure.

3 As the 21st century greeted Russia, the Russian economy was bound by a lingering
4 recession, a currency crash (1998-99), and sluggish export possibilities; the downturn of the
5 Asian economy was especially damaging to Russian forest products sector. Average daily
6 productivity of the Russian forest sector worker (all sectors combined) dropped between 1990
7 and 1995 by 44%, while at the same time Russian laborers received only 10%, on average, of
8 what their colleagues in the west received (Moiseyev *et al.* 1999). The Russian forest sector
9 was still struggling with record low harvest rates, as of 1996, that were only 47% of what they
10 had been only 10 years earlier (Päivinen *et al.* 2000). Average annual output of roundwood and
11 processed wood from 1990–1997, as compared to average annual production during the period
12 1970–1990 indicated that production had fallen off a staggering 70% (Figure 2) (Moiseyev *et al.*
13 1999).

14 The territory of Russia encompasses approximately 1,709.4 million ha (4,223.9 million
15 acres) (Nilsson *et al.* 2000) with 884 million ha (2,184 million acres) in the boreal forest zone
16 representing over half of the world's boreal forest reserve (Krankina *et al.* 1997). Global climate
17 change is considered a serious threat to these forests because of predictions indicating that
18 productivity, and carbon sequestration abilities, of boreal forests will be diminished by as much
19 as 50% due to global warming. Further, these models forecast increased carbon releases from
20 the soil and detritus layers of boreal forests because of significantly increased decomposition in
21 the changed climate (Manabe & Wetherald 1987). Nilsson *et al.* (2000) estimated that between
22 1961 and 1983, Russian soils sequestered, on average, $10.1 \text{ g C m}^{-2}\cdot\text{yr}^{-1}$. This trend reversed
23 between 1984 and 1994 as these forest soils became a net source of carbon emissions into the
24 atmosphere at the rate of $7.1 \text{ g C m}^{-2}\cdot\text{yr}^{-1}$ due to anthropogenic and natural disturbances.

1 As the Kyoto Protocol of the UN Framework Convention on Climate Change is debated
2 globally and targets are discussed between countries, there is little disagreement that Russian
3 boreal forests will be considered a critical carbon sink influenced by internal factors of Russia
4 (e.g., forest management practices, forest policy, anthropogenic and natural disturbances) and
5 external factors (e.g., global warming, world-wide wood demand). The elimination of the RFFS,
6 the State Committee for Environmental Protection, and other federal departments and
7 transference of their authority to the MNR in May 2000, while being significant, is only so in
8 terms of how the land resources will be managed in the future. An examination of the
9 organization and goals of the Ministry is necessary.

10 **Structure of the Ministry of Natural Resources**

11 The strengthening of authoritarian rule by the Russian government is evidenced in the new
12 structure of Russian forest management. The structure of the RFFS, prior to the reorganization,
13 was conceived in 1993 and formalized only in 1997 (Chart 1). This rapid evolution, and the
14 establishment of 7 new federal districts (Chart 2, Figure 1), reminds the Russian people of the
15 familiar aroma of soviet times. The seven federal districts report directly to the leadership of the
16 ministry in Moscow. The districts are named as follows (Figure 1):

- 17 1) Tcentralny (Central District)
- 18 2) Privolzhsky (Volga River District)
- 19 3) Yuzhny (Southern District)
- 20 4) Uralsky (Ural Mountain District)
- 21 5) Sibirsky (Siberian District)
- 22 6) Dalnevostochny (Far Eastern District)
- 23 7) Severo-zapadny (Northwest District)

24 Federal District Forestry Departments are a new level of administration not observed in
25 Russian forest management prior to Putin's Decree of May 2000. Organized much like the
26 military of Soviet times, the MNR has a central leadership in Moscow with the listed Regional

1 Districts, each covering a specific geographically continuous region made up of the subjects of
2 the Russian Federation (republic, krai, oblast, autonomous bodies, and okrugs; similar to 'states'
3 in the USA) (Figure 1). Within each 'state' there exists a director of the Forestry Department
4 Administration who oversees all of the resource activities of his or her specialists on the
5 forestland (Chart 2).

6 Professor Mikhail Mikhailovich Orlov (1930) argued that the establishment of the “leskhoz”
7 (similar to a National Forest in the US Forest Service system) as an additional management
8 structure between the “lesnichestvo” (similar to a Ranger District) and oblast/kray (states) would
9 make management more complicated because any additional link in the chain of command and
10 forest management would reduce power and decision making abilities by requiring more time.
11 He argued that a three link structure (Ministry – oblast/kray – lesnichestvo) is better than a four
12 link structure (Ministry – oblast/kray – leskhoz – lesnichestvo). Considering the changes
13 involving the MNR of today, Russia has acquired an even longer chain of links (Ministry –
14 Federal District – oblast/kray – leskhoz – lesnichestvo) resulting in even slower movement of
15 information and decisions.

16 Shortly after administrative responsibility was transferred from Goskomekologiya (former
17 Committee for Environmental Protection) and Rosleskhoz (former RFFS) to the MNR, the
18 Ministry conducted an evaluation to verify the list of organizations it managed. At the time of the
19 reorganization, the MNR took over supervision of 282 enterprises (e.g., commercial ventures,
20 production facilities); 187 with a geological orientation, 81 from the RFFS, 6 from water services,
21 and 8 from the former state Committee for Environmental Protection. The MNR also took over
22 management of 2,216 organizations (e.g., managerial offices, institutions); 65 from geology,
23 1,924 from the former RFFS (including 1,767 leskhozoes and 30 national parks), 57 from water
24 services, 170 from environmental protection (including 100 nature preserves) (MNR 2001). In
25 order to streamline the Ministry, the MNR created a transition team to make recommendations
26 on reorganization. Their mandate was dictated in an internal document of the MNR;

1 "...In order to increase effectiveness of the enterprises'
2 functioning and to strengthen control over their activities, to
3 improve management's quality control, and to increase revenues
4 into the federal budget from the utilization of federal property,
5 a verification of the number of managed enterprises and
6 organizations is to be conducted." (MNR 2001)

7 The results of the efforts of the reorganization team were to preserve 143 of the commercial
8 ventures in the form of state run industrial complexes. Fifty of the former commercial offices
9 were transformed into joint-stock companies (which the MNR holds interest), 50 were reformed
10 to become larger companies, while 39 more were liquidated completely. In terms of the
11 administrative centers, out of the 2,216 original offices, 3 have been liquidated with a decision
12 pending on another 113 (MNR 2001).

13 Also significant in this reorganization is the integration of the national Forestry Research
14 Institutes, and the Aerial Forest Fire Fighting Network (AviaLesoOkhrana), into the ranks of the
15 MNR (Chart 2). These organizations are subordinated at the Regional District level to the
16 Regional Director of the MNR.

17 The human resources of the MNR are a cumbersome mixture of individuals from the former
18 RFFS, the former State Committee for Environmental Protection, and the pre-existing MNR.
19 There are additional managers that came to the reorganized division from outside the melting
20 pot. For example, the Director of the Far East District of the MNR is a geologist (from the pre-
21 existing structure of the MNR), with a forester as a Deputy Director (from the former RFFS).
22 However, the newly named head of the MNR in Moscow, Minister Artyukhov, 57, is a political
23 appointee with no history of working in any of the related departments or even a related field of
24 science; he built his career in the car transportation industry. Since the collapse of the Soviet
25 Union, he has filled various government positions, including the post of first deputy finance
26 minister. Artyukhov headed the State Tax Service in 1996 and 1997, and was then transferred

1 to run the Federal Road Service. For the year preceding his most recent appointment Artyukhov
2 held the post of first deputy transport minister (Korchagina 2001).

3 After over a year of reorganization, it has been a trend that the Regional Directorates in
4 Siberia and the Russian Far East are being led by former executives from the pre-existing MNR.
5 Their administrative focus before, and since, the reorganization has been on the exploitation of
6 oil, gas, and precious minerals and now, an orientation to timber harvesting (Kolomytsev 2001).
7 The Ministry reported that the annual allowable cut (timber) in the Russian Federation during the
8 year 2000 was 549.8 million m³. According to forestlands managed by leskhozoes of the MNR,
9 the volume of timber logged from major cutting operations increased from 1999 by 5.7 million m³
10 for a year 2000 total timber harvest of 116.8 million m³. An additional 19.4 million m³ was
11 harvested in intermediate thinnings with 11.2 million m³ harvested during other types of stand
12 treatments (MNR 2001). This amounts to approximately 23% of the annual allowable cut for
13 Russia, a 1% increase over 1999.

14 There has been a general tendency since 1991 in Russia of increased annual harvest
15 volumes. The former RFFS called on the timber industry to harvest more timber because the
16 overall forest age class distribution was getting older, and the market value of timber harvest
17 was declining. At the same time, the forest fire situation became worse because a significant
18 amount of on ground fuel-wood had accumulated. Also, the associated increase in timber sale
19 and leasing revenues brought more money into forest management units for their everyday
20 operations such as reforestation, fire fighting, and pest control.

21 Timber harvest leases managed by the MNR remained unchanged from 1999 to 2000 with
22 approximately 51.2 million m³ harvested by leaseholders. Timber sold during auctions
23 conducted by the MNR increased 8% between 2000 and 2001 to 29.9 million m³. However, the
24 auction price increased dramatically (66%) over the same period to reach 1,789.5 million rubles
25 (≈US\$64.1 million) and was a result of higher valued timber being sold. Timber sale revenues
26 generated an additional 793 billion rubles (≈US\$28.4 billion), an increase of 77.5% from 1999,

1 again largely a result of high valued wood being sold during the Ministry's first year of operating
2 with forestry responsibilities (MNR 2001).

3 In terms of operating budgets, forest management was allocated only 2.9 billion rubles
4 (approximately US\$103.6 million) by the MNR for operations in the 2000 fiscal year; this amount
5 is on par with the forest management budget received for the fiscal year 1999. Of the operating
6 budget for 2000, 560.2 million rubles (\approx US\$20.0 million) was allocated to forest fire control,
7 134.3 million rubles (\approx US\$4.8 million) was allocated to make government investments in
8 commercial ventures, 72.8 million rubles (\approx US\$2.6 million) for special educational purposes of
9 personnel, and 19.7 million rubles (\approx US\$0.71 million) for scientific research and engineering into
10 forest management (MNR 2001).

11 Forests are not the only resource managed by the MNR. Although all mining in Russia is
12 privatized, the management and oversight of oil, gas, and mineral resource exploitation demand
13 a significant amount of the Ministry's human resources. Pelkki *et al.* (2001) estimate that
14 western Siberia possesses the largest oil and gas reserves in the world in terms of area and
15 volume and are seconded in terms of value only to the Middle East. These fields account for
16 75% of Russia's oil and gas production but carry a severe environmental consequence. Since
17 their first development in the 1970's repeated oil spills have occurred from pipeline failures.
18 Estimates on the level of environmental contamination vary but indicate that as much as
19 200,000 tons of oil each year are spilled within an 800 km (500 mile) radius of Nizhnevartovsk,
20 Russia (Whitney 1996). When considering the total area of Russia, the magnitude of oil spills
21 into water and on land are estimated at 1 million tons annually, the rough annual equivalent of
22 25 Exxon Valdez size spills (Hertsgaard 2000).

23 The problem has been evident for many years and continues to be so today. As recently as
24 May and June 2001, flood-damaged eastern Siberian reservoirs have spilled fuel into the
25 swollen Lena River. News reports put the volume of the fuel spill into the Lena River at 13,000

1 to 18,000 tons (Associated Press 2001). These oil spills degrade forest soils, change rain- and
2 snowfall infiltration, interrupt forest regeneration, fuel massive forest fires, and destroy aquatic
3 ecosystems.

5 **Barriers to Increased Management**

6 Improved forest management of the Russian taiga brings with it many desirable social and
7 ecosystem based outcomes while either a decrease in, or abuse of, forest management
8 activities carries negative consequences. According to Shvidenko *et al.* (1998), the adaptation
9 of reliable and operational systems for forest fire protection is the most important aspect of
10 boreal forest sector management. The inability to access remote lands prevents harvest
11 activities, reforestation, forest fire fighting, insect control, and forest disease control as well.

12 Current carbon storage measured in the Russian taiga is below its optimum (Shvidenko *et*
13 *al.* 1998). Research conducted by various scientists at the International Institute for Applied
14 Systems Analysis (IIASA) has concluded that Russian forests could sequester between 400 Tg
15 C•yr⁻¹ and 700 Pg C•yr⁻¹ through improved management scenarios. In addition, analyses show
16 that carbon emissions from forest disturbances (fire, biotic, abiotic) would be significantly
17 reduced under improved management of the Russian taiga (Shvidenko *et al.* 1998, Nilsson &
18 Shvidenko 1998, Nilsson *et al.* 2000). The effect of greater sequestration by the forests of
19 Russia coupled with a significant decrease in the amount of carbon emissions from the forest
20 during disturbances falls in the range of values needed to offset the amount of carbon emissions
21 from Russian industry to make Russia a net sink of carbon annually (Nilsson *et al.* 2000).

22 A constant deterioration of Russian boreal forests from 1975-2001 has demonstrated that
23 small climatic changes have been a negative force, the situation being exacerbated by
24 anthropogenic pressures (Nilsson & Shvidenko 2000). Limited access continues to be a
25 significant obstacle to increased utilization; however, it is not the only factor precluding
26 increased management activities. Russia must develop a stable market economy and a steady

1 commercial forest sector that makes long-term investments in infrastructure, reforestation, fire
2 control, and ecosystem health possible. The question remains as to the way the MNR will
3 approach the issue of an eventual managerial compromise between the goals of resource
4 extraction and the responsibility of forest management (fire control, reforestation, insect and
5 disease control). At this point, it seems evident that the significant revenues being generated by
6 timber harvesting are not being substantially reinvested in the management of the resource.

7 **Development of a 21st Century Market Economy in Russia**

8 The evolution of a market economy and overall market efficiency in the Russian Federation
9 has received considerable and on-going debate (see Gaddy & Ickes 1999, Carlsson *et al.* 2000,
10 Vasenda 2001, Nysten-Haarala 2001). Many of the discussions are directly applicable to the
11 dialogue concerning the MNR. For the MNR to succeed in being a positive change agent for the
12 Russian economy and Russia's environmental goals, we assert that the private forestry sector
13 of the Russian Federation must also develop and mature to provide for some of the inputs to
14 management that have been historically lacking in the Russian forest sector specifically, and the
15 Russian economy in general.

16 An established private forest sector would solve some of these problems by providing the
17 means of creating, within the bounds of sustainable development supported by the Ministry, an
18 investment infrastructure and a cadre of resource professionals from outside of the bureaucratic
19 agency. Carlsson *et al.* (2000) set forth eight criteria to evaluate the institutional framework
20 necessary for a well-functioning market economy that adheres to the principles of sustainability
21 of forest resources.

- 22 1. Constitutional rules are acknowledged and transparent;
- 23 2. The structure of property rights is settled and well defined, i.e. private actors can
24 acquire property or get the right to utilize property for their own benefit;
- 25 3. Rules and regulations from official authorities are regarded as legitimate and apply
26 equally to similar actors;

- 1 4. The market decides the price of property and goods;
- 2 5. Decision making regarding collective choice and operational rules is decentralized;
- 3 6. Private investors can realize the returns on their investments;
- 4 7. Rules are enacted aimed at preventing the devastation of natural resources; and
- 5 8. Legitimate authorities take measures against violations of rules.

6

7 So far, the Russian Federation has failed to achieve all of these factors simultaneously.

8 Gaddy & Ickes (1999), as well as others, point to the existence of a Russian virtual economy,

9 rooted in the times of the former Soviet Union, preventing many of these conditions from being

10 met. The virtual economy of Russia has been jokingly defined as the situation of the

11 government pretending to provide services to its citizens while taxpayers pretend to pay taxes,

12 and companies pretending to pay their employees while the employees pretend to work. This

13 situation prevents the further development of a still infantile market economy in Russia. The

14 virtual economy is defined by the set of conditions where prices, wages, taxes, and production

15 levels are not set freely in the marketplace, but instead are set through a complicated interplay

16 between politicians who are also major shareholders in businesses, companies that pay their

17 taxes by providing services to the local administrations, business directors that keep their

18 companies operating at a loss because they are able to maintain their personal salaries and

19 pilfer value from the meager earnings generated by the firm while paying their employees a

20 small amount only after a 3 to 6 month delay. Such an economy is only able to maintain itself

21 because it has been insulated from free market competition. This insulation has more often than

22 not been provided by the politicians that are also the financial beneficiaries of the dysfunctional

23 economic policy they implement.

24 The virtual economy is fed by corruption; from local administrations that require bribes to

25 carry out basic functions or to provide special treatment, to scandals involving the highest levels

26 of administration. For example, according to deputies in the State Duma and officials of the

1 Central Bank, bank officials mishandled and possibly even embezzled portions of International
2 Monetary Fund (IMF) and other loans to Russia in 1998 and 1999. Even former Russian Prime
3 Minister Viktor Chernomyrdin admits that some World Bank credits, such as the coal industry
4 credit, "just disappeared" (Cohen 1999). Such situations involving multimillion-dollar corruption
5 at the highest levels of the Russian government involving IMF and World Bank funds undermine
6 the ability of the economy to attract foreign investors while discouraging increased domestic
7 investments. It is relevant to note that former Prime Minister Chernomyrdin (1992-1998) has a
8 net worth (circa June 2001) estimated at \$1.1 billion. He founded gas giant Gazprom. He is now
9 the Russian ambassador to the Ukraine, a major client of Gazprom. He and his family still own
10 significant Gazprom stakes and related properties in Russia (Forbes 2001).

11 Foreign assistance programs from a variety of donors have provided aid to Russia since
12 the collapse of the Soviet Union. However, much of this aid addresses symbols instead of
13 substance, failing to empower recipients, failing to coordinate efforts between other donors,
14 failing to operate in the extended time horizons of forest management, and failing to provide
15 sufficient funds to make substantial changes in the areas where they intervene (Laarman 2001).

16 We would point to examples of foreign assistance projects by the US and other countries
17 that have attempted to transplant forest code derivatives from other countries into the Russian
18 legal system. We feel that this transfer of legal infrastructure is bound to failure because laws
19 and codes must reflect the legal, social, and commercial practices of the Russian Federation in
20 order to receive the acceptance and respect of the players in the economy, legal system, and
21 social structure. Russia must develop its own path to achieve its goals in natural resource
22 policy.

23 The role of the MNR is crucial in developing the structure of a potentially well-functioning
24 forest sector market economy that adheres to the principles of forest resource sustainability. We
25 will consider each of the conditions proposed by Carlsson *et al.* (2000) to evaluate the
26 probability of these conditions being met.

1 First, are "constitutional rules acknowledged and transparent"? The Russian Federation
2 enacted a national constitution on December 12, 1993. This constitution, and its enforcement,
3 on the surface, meet the conditions of transparency and equal enforcement, however, as
4 demonstrated above, they are compromised by the entrenchment of the shadow economy of
5 Russia and inconsistent enforcement of rules and regulations by administrations at all levels.
6 This nontransparent veil must be lifted to achieve the proper enforcement of constitutional laws.

7 Next, is the "structure of property rights settled and well defined, i.e. private actors can
8 acquire property or get the right to utilize property for their own benefit?". Ostensibly, property
9 rights are one of the founding tenants of the Russian Constitution. Article 9 of the Constitution
10 directly addresses Natural Resources as the title of the article:

11 **Article 9 [Natural Resources]**

12 (1) The land and other natural resources are used and protected in the Russian Federation
13 as the basis of the life and activity of the peoples living on their respective territories.

14 (2) The land and other natural resources may be in private, state, municipal and other forms
15 of ownership.

16 As we can see, in article 9, section 2, the constitution provides for private land ownership
17 including land which is dedicated to natural resource uses. This would include forests, minerals,
18 oil, farm land, business, and related uses. Article 35 addresses the issues of private property in
19 even more detail.

20 **Article 35 [Private Property]**

21 (1) The right of private property is protected by law.

22 (2) Everyone has the right to have property in his or her ownership, to possess, use, and
23 manage it either individually or jointly with other persons.

24 (3) No one may be arbitrarily deprived of his or her property unless on the basis of decision
25 by a court of law. Property can be forcibly alienated for state needs only on condition of
26 a preliminary and equal compensation.

1 (4) The right of inheritance is guaranteed.

2

3 In Article 36, land ownership rights are detailed:

4 **Article 36 [Land Ownership]**

5 (1) Citizens and their associations have the right to have land in their private ownership.

6 (2) The possession, use and management of the land and other natural resources are freely
7 exercised by their owners provided this does not cause damage to the environment or
8 infringe upon the rights and interests of other persons.

9 (3) The terms and procedures for the use of land are determined on the basis of federal
10 laws.

11

12 Finally, in the shortest of the 137 articles contained in the Russian Federation Constitution,
13 Article 58 details the responsibility of all citizens to protect the environment.

14 **Article 58 [Duty to Protect the Environment]**

15 "Everyone is obliged to preserve nature and the environment, and care for natural wealth."

16 The prominence of property right guarantees in the Russian Constitution would lead to the
17 erroneous conclusion that private ownership of vast areas of forestlands and agricultural land in
18 the Russian Federation is not only allowed but encouraged. On the other hand, it is important to
19 recognize that property rights are not the same as property ownership (Carlsson *et al.* 2000).
20 Property rights are derived from the utilization of scarce resources provided by the property
21 owner to a land user. The historic instability of property ownership in Russia is therefore key to
22 understanding why property rights in Russia are also insecure, even today.

23 The former RFFS issued 50-year leases of forest concessions to domestic and foreign
24 investors between 1997-2000. A few of these leases were purchased by foreign investors, yet,
25 the application of property rights has been unequal between foreign and domestic concerns.

1 Property rights, as they are understood in the international community are not a fact of life in the
2 Russian Federation.

3 It is Article 36, paragraph 3, of the constitution which casts a shadow over the ability of
4 Russian citizens to own land and exercise personal property rights in the Russian Federation. It
5 seems that there are no guiding federal laws to set the terms and procedures for land use in
6 Russia. In order to cast light into these shadows, the Duma has convened hearings during its
7 June 2001, session to address property rights and ownership issues. There has been and
8 continues to be a strong resistance on the part of the Communists and the Agrarian Party to
9 allow the acquisition of land by private citizens (thereby granting property rights). In their
10 slogans painted on banners during public demonstrations they state "*to sell the land, is to sell*
11 *Mother Russia!*". There is still significant resistance to property right privatization as it applies to
12 forests and agriculture land.

13 In an agreement between the Union of Right Forces, the Communist and Agrarian factions,
14 and the president, all controversial parts of new legislation dealing with the turnover of
15 agricultural land and forestland were taken out of the draft that was read on the Duma floor in
16 June 2001. The Union of Right Forces plans on submitting amendments to allow land ownership
17 by foreigners, especially in the case of agricultural land (Borisova 2001). As of the middle of
18 2001, there are no appreciable areas of forestlands or farmlands in the Russian Federation that
19 are privately held. The lack of private land ownership and poorly defined land use rights will
20 remain a significant barrier to the development of a private forestry sector in the Russian
21 Federation into the near future.

22 However, simple privation of the land resource is not the solution to this situation. There
23 has been a 200 year gap since Russian people were last allowed to own and manage private
24 forestlands. A current day privatization of Russia's forestlands must be combined with some
25 method of instilling a private forestland ownership culture in the people that will take over the

1 stewardship of the forest resources. Without it, it is questionable if private forestland owners,
2 with no experience or an applicable model to emulate would be successful.

3 Third, "rules and regulations from official authorities are regarded as legitimate and apply
4 equally to similar actors". Although people are guaranteed equal treatment under the
5 constitution, this particular condition has not been applied uniformly in Russia. A relevant
6 example concerning the MNR during the first half of 2001, involves the competition for the right
7 to develop the Gamburtseva oil deposit in the Nenets Autonomous Area. Although the
8 competition was offered competitively, there were allegations of price fixing and unfair bidding
9 practices surrounding the award to an "insider" familiar to the leadership of the MNR (Raff
10 2001). Oil companies displeased with results appealed the award. The Russian court declared
11 the award illegal and ordered the MNR to conduct a new competition for the rights (Tutuschkina
12 2001). This case in point illustrates two sides of this condition to the development of a
13 sustainable free market economy in Russia: on one hand, the system of rules and regulations
14 from official authorities failed to treat all actors in the economy in the same way, while on the
15 other hand, the players in the controversy were able to turn to the courts for a temporary
16 remedy.

17 Fourth, does "the market decide the price of property and goods?" This condition is
18 especially relevant to the forest sector of Russia, and is only partly operating efficiently at this
19 time. Forest concession owners are allowed to market round log products offshore that were
20 harvested from Russian forests, but prices are limited in that private companies cannot sell for a
21 lower price than state held companies sell for. This condition insures that the state-run logging
22 enterprises remain competitive while also insuring that private companies pay income taxes at
23 higher revenue levels than might otherwise be observed. Even if the state-run organizations are
24 not able to sell in a depressed market, floor prices are enforced making the more efficient
25 private companies actually subsidize their client's purchases when they sell logs for low prices

1 (and still pay income taxes based on an artificially high price). Private logging organizations
2 operating on a state lease or concession are even required to sell logs to the state-owned
3 logging organization at the request of the local administration, for prices set by the state, this
4 condition being non-negotiable in order to keep their license to harvest timber. This
5 inconceivable situation is replicated in other forest business situations around Russia.

6 Russian and foreign companies operating in Russia as a registered organization must
7 report all hard currency exchanges to the Tax Police and hold that income in a Russian bank.
8 Further, the law states that no less than 75% of all hard currency brought into the country must
9 be converted to rubles through the state-run Central Bank, at the state's exchange rate.
10 Proposals in the Duma during June 2001 offer to reduce this requirement to 50% of all hard
11 currency revenues. The impact of this requirement is an artificial tax further influencing free
12 pricing systems in Russia.

13 The Russian Tax Authority (Tax Police) has significant power in the Russian Federation.
14 They are able to limit who companies sell to, the terms they negotiate, and they must approve
15 all foreign contracts for the sale of items. Because of these interventions, Russia is still not
16 allowing the market to set the price of all goods and services.

17 Fifth, is "decision making regarding collective choice and operational rules decentralized?"
18 In the case of forest management by the MNR this condition has worsened in comparison to the
19 management structure observed during the times of the former RFFS. The recent evolution from
20 many departments into one Ministry added another level of vertical structure (e.g., compare the
21 organizations presented in Charts 1 & 2).

22 During the era of the RFFS, decision making authority was in the hands of a manager
23 located in each subject of the Russian Federation (krai, oblast, etc.). This director was in close
24 contact with field managers and was responsible for forest management activities in his region
25 (Haung 1997). Under the scheme of the MNR, authority for day-to-day management decisions
26 no longer rests in the hands of the local authorities, but is now the purview of the head of the

1 Regional District (Kolomytsev 2001). The MNR Director at the krai or oblast level of
2 administration cannot even sign banking papers on behalf of the local MNR office. In this way,
3 the decision making authority is not as decentralized as one would hope and reason as
4 appropriate, but at least it does not rest solely in Moscow. We assert that the conversion of
5 forest management authority from the RFFS to the MNR has moved forest management
6 decisions in the direction of centralization.

7 Sixth, can "private investors realize the returns on their investments?" Although there are
8 countless stories about unfair tax regulations, mysterious licensing rules, and a bureaucracy
9 that confiscates profits, the structure of laws and regulations are in place to allow private
10 investors to make and realize profits from investments in the Russian Federation. The
11 establishment of stock market exchanges in Moscow, St. Petersburg, and Vladivostok, has
12 moved Russia forward in this arena substantially. Foreign firms have at their access a
13 mechanism to repatriate capital from investments in the Russian Federation, after taxes of
14 course.

15 The last two conditions can be considered together; are "rules enacted aimed at preventing
16 the devastation of natural resources?", and do "legitimate authorities take measures against
17 violations of rules?" To these questions a number of conditions must be considered. Although
18 the protection of natural resources was guaranteed in the constitution of the federation, its
19 enforcement is more difficult to establish. Prior to the new authority granted to the MNR, the
20 State Committee for Environmental Protection was responsible for ensuring that legislation
21 concerning the protection of natural resources was enforced. Field based employees of this
22 organization inspected forest management activities from the equipment used on a logging site
23 to the slope of roads and skidding trails. They examined cutting plans and levied substantial
24 fines for violations of the law. Since the summer of 2000, when their organization was abolished
25 by the Kremlin, past Director Viktor Danilov-Danilyan has been "a captain without a ship"
26 (Ognev 2000).

1 The reformed Ministry now has responsibility for environmental protection. During the
2 second half of 2000 and the first half of 2001, the MNR inspected logging activities of
3 concession holders and leskhozoes. Their inspections for compliance with environmental laws
4 resulted in 1.5 billion rubles (\approx US\$53.8 million) of fines levied against concession holders. An
5 additional 156.7 million rubles (\approx US\$5.6 million) were filed as damages in court suits against
6 timber sale operators for damage incurred to forest resources of the federation. In addition,
7 during this period, the MNR fined approximately 1,500 government employees and private
8 citizens 4.1 million rubles (\approx US\$147,000), and filed 126 criminal suits against individuals for
9 violations of environmental laws (MNR 2001). Based on these events, it would seem that the
10 MNR has taken the responsibility of environmental protection seriously. It will be prudent to
11 watch the outcomes of these cases to see if the application of environmental laws was made
12 fairly and uniformly.

13 The concern by concession holders and many in the international community is that by
14 combining all of the listed agencies into one governmental organization, there is one centralized
15 decision making authority responsible for combining environmental protection with economic
16 gains from the extraction of natural resources. While it is a streamlined organization, the
17 potential conflicts of interest are substantial in this scheme.

18 **What is in Russia's Future Forest Management Challenges?**

19 Russia is faced with the challenge of not only market risks but political risks as well. The
20 Russian people would be well served from laws, no matter how poorly written, that are stable
21 and enforced consistently as opposed to a continuous change in the underpinnings of
22 regulations that have little or no basis in operational reality. On this matter, the responsibility
23 rests squarely with the federal administration of Russia. Historical events dictate that Russia's
24 policy will only be implemented from above.

1 In the forestry sector, we are witnessing an ebb of management control as decision making
2 authority is being centralized after only 4 years of being slightly decentralized to the level of the
3 subjects of the federation. This progression away from decentralized management authority is a
4 hindrance to the development of a stable and progressive forest sector market economy. It is
5 reasonable to assert that the MNR will be the key agency in interpreting the path of land use
6 policy in Russia, as proclaimed by Presidential decree.

7 In terms of focal issues facing the boreal forest, the leading topic is Russia's role in abating
8 the negative effects of global climate change during the coming decades. This concern
9 encompasses matters of forest growth, fire, reforestation, logging, and land use changes. The
10 Kyoto Protocol of the UN Framework Convention on Climate Change contains, for the first time,
11 quantified, legally binding commitments, after countries have ratified the protocol, to limit or
12 reduce greenhouse gas emissions (Nilsson *et al.* 2000). According to the Protocol, the
13 industrialized countries must reduce their emissions by at least 5% below 1990 levels within the
14 commitment period 2008–2012. Article 3.3 of the Protocol states that biological sources and
15 sinks should be used for meeting commitments during the commitment period, but limits these
16 sources and sinks to afforestation, reforestation and deforestation since 1990. Article 3.4
17 provides for the possibility of using additional land-use change and forestry activities to meet
18 reduction commitments (Nilsson *et al.* 2000).

19 The MNR has operated for the past decade with an institutional mentality of resource
20 extraction. This is the founding principle of oil, gas, mineral, and precious metal removal.
21 Forestry is a very different resource; it requires management, long-term planning, and
22 reinvestment of human resources and monetary capital. In the global picture of the 21st century
23 Russia's boreal forests play an important role in global climate change predictions.

24 We can speak in terms of a range of possible courses of action for the MNR to implement
25 at this time. At one extreme, that of singular extraction, the MNR will treat forest resources as a
26 mineral deposit to be "mined" and forgotten. The other extreme, that of long-term resource

1 management, would have the MNR treat the forest as a renewable resource to be invested in
2 and managed. The most realistic possibility will be found between these two extremes, a
3 scheme which would harvest highly valuable stands of timber but reinvest only in those forest
4 stands which meet some criteria of economic profitability.

5 Under forest management of the first extreme, the forest resources of Russia would
6 continue to be a source of carbon emissions to the atmosphere. While there would be a peak in
7 the amount of carbon stored in lumber and other wood products resulting from harvest and
8 conversion to solid wood products (Schlosser *et al.* 2001), the conversion would be short lived
9 as the cut-over lands would be left to naturally regenerate and all "economically infeasible"
10 forestlands would be left with little or no forest fire protection. Under this scenario, Russia would
11 continue to be a net source of carbon emissions to the atmosphere (barring a dramatic
12 reduction of industrial carbon emissions) and the importance of the Russian boreal forest would
13 be reduced in terms of mitigating the negative effects of global climate change.

14 Under the environmentally focused scenario, the MNR would continue and expand efforts
15 started by the former RFFS and the Committee for Environmental Protection to manage the
16 forestlands of the country to improve forest health, reduce forest fire size and limit the conditions
17 leading to catastrophic forest fires. The MNR would invest in the long-term development of seed
18 breeding centers and reforestation centers that develop the infrastructure of providing bare-root
19 and greenhouse grown (containerized) seedlings for outplanting to the burnt and harvested
20 forest sites, invest more in forest inventory and planning, pest monitoring and control. The
21 Ministry would make substantial investments in developing a road network into the vast forested
22 areas of Siberia and the Far East that currently have no access except by air. This scenario
23 would be a departure from the traditional management style of the MNR. However, the MNR is
24 now a different organization than it was prior to the reorganization of 2000. Today, the Ministry
25 has foresters and resource managers in its ranks with a long history of boreal forest
26 management. If these natural resource management professionals are able to shape the new

1 MNR to adhere to the principles of long-term forest management, then it is possible that the
2 boreal forest will begin to show increased growth, reduced forest fire losses, and improved
3 forest regeneration benefits into the future. If the agency is allowed to reinvest in resource
4 development this could be a real revolution for forest resources of Russia. Unfortunately, this
5 option assumes a bottom-up system of policy change in the Russian government, a reality that
6 we know is prone to failure in Russia.

7 The more likely outcome is a compromise between the two extremes. As organizations
8 evolve they are influenced by the people making up the organization and by the leader of the
9 organization, in this case, President Putin. In Russia, top-down management is the norm, and it
10 is the most likely course of action that the MNR will be managed in union with his desires. It was
11 no accident that the President made this change in the way he did. It was his desire to focus
12 forest management activities on a more utilization oriented path than was observed under the
13 1997 forest code. In public interviews he asserted that Russia must strengthen its economy to
14 catch up with the utilization standards of the west and this must be done before Russia
15 considers further environmental protection (Klose 2000).

16 As evidenced during events of 2000–01, it is likely that the MNR will focus the majority of
17 forest management activities on actions that are considered profitable in the short-term
18 perspective. The President has made it clear that economic development of the motherland is
19 the "new" guiding principle for forest management. This will likely result in increased harvest
20 rates and a focus on infrastructure development to access forestlands which are also
21 juxtaposed with areas of mineral, oil, or gas resources. By default, these roads and support
22 facilities of the natural resource complex will be available for forest fire protection as well,
23 provided that AvaiLesoOkhrana (Air Forest Fire Fighting Network) is fully funded and given the
24 human resources needed to fight the fires. The critical link will be to see if reforestation of burnt
25 and cut over sites will be made a priority or not; such an investment would require a financial
26 commitment above what is needed for short-term returns. It is doubtful if the long-term

1 investment in a tree seedlings will be considered favorably in an economy where the overriding
2 discount rate (due to inflation and currency devaluation) is well in excess of 40% per annum.

3 Of course, environmental protection exceeds the considerations of reforestation alone and
4 speaks to a greater philosophy of a land ethic; to protect soil, biologic systems, and ecosystems
5 from damage, to protect rare and endangered species from extinction, and to insure the long-
6 term productivity of the entire resource.

7 **Conclusions**

8 Economic events in Russia demand people's attention much like a flash light does when it
9 is turned on in a dark room. The static of Russian mental habits combined with the dynamics of
10 near instantaneous information exchange in our electronic age results in a colorful mosaic of
11 economic events when viewed against the traditionally monochrome political canvas of Russian
12 society. The constant change of political decorations and reshuffle of more or less socially
13 colorful figures creates an illusion of a change in the eyes of a historically submissive audience.
14 Political librettos written at the very top of power have inevitably controlled the pulse of
15 economic transformations in Russia. In reality, these transformations have gravitated to a
16 central theme of state control over prices, resources, and markets.

17 The economic structure of Russia at the beginning of the 21st century is a result of over 300
18 years worth of financial systems evolution. Shock therapy was imposed on the Russian
19 economic system in 1917 and again in 1991. New external market conditions that strive to
20 establish the rules and regulations for a market economy in Russia are destined for failure.
21 North (1991) concluded that although economic systems may change overnight in Russia,
22 "informal constraints embodied in customs, traditions, and codes of conduct are much more
23 impervious to deliberate policies." A survey of the world's financial systems reveals that many
24 forms of market economies have developed. The history of Russia teaches us that the evolution
25 of the Russian market system will take on a somewhat different form from that which exists in
26 the west. Its development is not yet complete, nor is it yet stable.

1 Patterns of politically acceptable behavior in Russia have sustained little change throughout
2 the past three centuries. The dominant Russian ideology of total obedience to authority has
3 been extrapolated from deep in the dark centuries of the Russian past, elevated to the rank of
4 the socially recognized ethical norm of behavior. This ideology is rooted in a religion that has
5 been the moral stronghold of the Russian people. This spiritual philosophy proclaimed total
6 conformity with the idea of a supreme figure governing each person in the form of a "master."
7 The master is evidenced as the head of a household, director of a workplace, or the leader of a
8 governing political organization. The hierarchy passes through the chief of state before resting
9 finally with God. This philosophy was woven into the basic fabric of the society's culture to sculpt
10 a national character with a diminished primary sense of "self". Communist ideology vaporized
11 the centuries-long power of the Russian Orthodox Church and replaced the void with patriotic
12 hymns and a new God to praise and be submissive to. This turn of script proved to be a
13 variation on the same theme of supremacy of the "people", but never the "individual". This
14 uniquely Russian situation demonstrates why today, the decrees of the President of the Russian
15 Federation will garner substantially more significance in society than rights proclaimed in the
16 constitution, by the Duma, or verbose legal policies offered as part of aid packages from foreign
17 donors.

18 The total reign of governmental supremacy over the individual appears to be the least
19 conducive factor in the social fabric for an unrestrained release of entrepreneurial energy in any
20 form of economic activity. A western style free market economy in Russia does not seem to be
21 probable in the coming decades. On the brighter side, the ideology of "common sense", when
22 introduced into the national temperament of Russia, will act as a fertilizer to feed the individual
23 sprouts of an institutionalized mentality scattered throughout diversified, albeit bleak, economic
24 landscapes of Russia.

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