United Nations Development Programme
Country: Russia

PROJECT DOCUMENT

Project Title:	Mainstreaming biodiversity conservation into Russia's energy sector policies and operations
UNDAF Outcome(s)/Indicator(s):	NA
UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:	#4.1. Mainstreaming environment and energy
Expected CP Outcome(s)/Indicator(s):	NA
Expected CPAP Output(s)/Indicator(s):	NA
Implementing partner:	Ministry of Natural Resources and Environment

Brief Description

Russia straddles eight biomes: polar deserts, arctic and sub-arctic forest tundra, taiga, broad-leaved forests, steppe, semi-arid and arid zones. The greater part of Russia's territory (65%) is covered with little-disturbed or pristine natural complexes. It is a repository of globally significant biodiversity, hosting 14 of the world's "Global 200 Ecoregions", and 8 of them in their entirety. The state system for wildlife protection has been in existence for over a century. The system covers all natural zones, the main mountain massifs and some coastal waters. However, as noted in Russia's 4th National Report to the CBD, there is a deceleration in the pace of development of the network of SPNAs (including marine reserves, national parks and zakazniks that protect aquatic ecosystems). A significant share of Russia's biological wealth will continue to exist outside the network of SPNAs. And, economic development will continue to place pressure on biodiversity outside protected areas. Most importantly, Russia's regions of globally significant biodiversity – namely the Arctic, Siberia, Far East, and Caucasus – are increasingly becoming the focus of energy development. The expected exponential growth of Russia's energy sector means a potential further rise in threats to biodiversity. Whether and to what extent these threats materialize depends on if the baseline course of action is corrected to address biodiversity risks. The desired long-term solution is for Russia to adapt its legislation and policies to include legal requirements for energy sector actors to take into consideration biodiversity conservation, and to develop and test technologies to implement these requirements in each industry. By so doing, Russia will be able to both minimize the adverse impact of energy sector development on biodiversity, and motivate positive actions to conserve biodiversity. The project will remove the barriers that hamper the realization of this long-term solution, through the following components. Outcome 1 will strengthen the regulatory environment of the energy sector (oil, coal, and hydropower) to enable better integration of biodiversity conservation issues in sector operations. Outcome 2 will focus on piloting biodiversity mainstreaming into oil sector operations in the Nenetsk, Northern Caspian and Sakhalin. Outcome 3 will pilot biodiversity mainstreaming into hydropower operations in Yakutia. Outcome 4 will pilot biodiversity mainstreaming in coal mining operations in the Khakassia and Kemorovo. Global biodiversity benefits will be realized through safeguarding long-term ecological stability of the Arctic, Tundra, and Boreal Forest biomes, as well as of the fragile ecosystems of the Caucasus and Far East regions. Mainstreaming biodiversity conservation considerations into energy sector operations at project demonstration sites alone will ensure population stability of a number of IUCN Red List species, including: Hooded Crane, Siberian Musk Deer, Siberian Grouse, European Otter, and Atlantic Salmon.

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Total budget	USD 39,150,000
Total allocated resources (cash):	
Partner managed	USD 31,420,000
(Details in Total Budget and Work Plan section)	
UNDP managed	
o GEF	USD 7,200,000
o UNDP	USD 530,000

***Agreed by (Government)**:*

NAME SIGNATURE Date/Month/Year

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ACRONYMS AND ABBREVIATIONS

APR	Annual Project Review
ATLAS	UNDP's Enterprise Resources Platform
AWP	Annual Work Plan
BSAP	Biodiversity Strategy and Action Plan
CBD	Convention on Biological Diversity
CO	Country Office
CP	(UNDP) Country Programme
CPAP	(UNDP) Country Programme Action Plan
EC	European Commission
EIA	Environmental Impact Assessment
EIIAT	Early Impact Identification and Assessment Tool
FSP	Full Size Project
GEF	Global Environment Facility
GIS	Geographic Information System
GOR	Government of Russia
Ha	Hectares
HPP	Hydropower Project
IBAT	Integrated Biodiversity Assessment Tool for Business
IC	Incremental cost
IR	Inception Report
IUCN	International Union for the Conservation of Nature
IW	Inception Workshop
JSC	Joint Stock Company
kW	Kilowatt
LHPP	Large Hydropower Project
LPAC	Local Project Appraisal Committee
M&E	Monitoring and Evaluation
MNRE	Ministry of Natural Resources and Environment/ Ecology
NAO	Nenets Autonomous Okrug
NGO	Non-government Organization
NIM	National Implementation Modality
NPD	National Project Director
PAs	Protected Areas
PB	Project Board
PBM	Project Board Meeting
PIMS	Project Information Management System
PIR	Project Implementation Review
PIU	Project Implementation Unit
PM	Project Manager
PMCU	Project Managament Cooridnation Unit
PPG	Project Preparation Grant
PSC	Project Steering Committee
PSTE	Pilot Site Technical Expert
RAIPON	Russian Association of Indigenous Peoples Organizations
RCU	Regional Coordination Unit
RF	Russian Federation
ROW	Right-of-way
SBAA	Standard Basic Assistance Agreement
SBAA	Standard Basic Assistance Agreement
SHPP	Small Hydropower Project
SO-2	(GEF's) Strategic Objective 2 (under the Biodiversity Focal Area)
SRF	Strategic Results Framework
STA	Senior Technical Advisor
SUEK	Siberian Coal Energy Company
TORs	Terms of Reference

TPR	Tri-partite Review
TTR	Terminal Tri-partite Review
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNDP-CO	United Nations Development Programme – Country Office
UNDP-GEF	United Nations Development Programme – Global Environment Facility Unit
USD	United States Dollar

1. SITUATION ANALYSIS

1.1 Geographic and biodiversity context

1. With an area of 17,075,200 square kilometers, Russia occupies much of easternmost Europe and northern Asia, stretching from Norway to the Pacific Ocean and from the Black Sea to the Arctic Ocean. Russia straddles eight biomes: polar deserts, arctic and sub-arctic forest tundra, taiga, broad-leaved forests, steppe, semi-arid and arid zones. The greater part of Russia's territory (65%) is covered with little-disturbed or pristine natural complexes[1]. The country is a repository of globally significant biodiversity, hosting fourteen of the world's "Global 200 Ecoregions" (9 terrestrial, 3 freshwater and 2 marine ecoregions), and eight of them in their entirety (Olson and Dinerstein, 1998). In terms of species diversity, about 8% of global vascular plant flora, 7% of mammal fauna and almost 8% of bird fauna are represented in Russia. Russia harbors more than 11,000 species of vascular plants, 320 species of mammals, 730 species of birds, 75 species of reptiles, 30 species of amphibians and 270 freshwater fish species. Ecosystems harboring relict biota of glacial and interglacial periods and many species that are rare today are particularly widespread in European Russia and eastern Siberia. Around 1,100 rare and endangered plant and animal species are included in the Red Book of the Russian Federation. Furthermore, Russia's vast forests and peat-bog landscapes bind huge amounts of carbon, estimated at 34-35 Gt C (forests only); carbon sequestration in 2004 was estimated at 528.2 million tons of CO_2/ year. [2]

2. The proposed demonstration areas of the project – Kemerovo Oblast, Republic of Khakassia, Nenets Autonomous Okrug, Northern Caspian region within Astrakhan and Kalmykia Oblasts, Republic of Yakutia, and Sakhalin Oblast – are also a repository of globally significant biodiversity. The Republic of Khakassia and Kemerovo Oblast (Sayany region) are home to a WWF Global 200 ecoregion namely the Northern steppes in intermountain basins. This area also has the Mountain Shoria and large boreal forest stands. It is one of Russia's biodiversity centers located at the juncture of south taiga and mountain-steppe zones. The Nenetsk Autonomous Okrug (NAO) in the North-East Tundra is characterized by Arctic ecosystems, the Pechora Sea, coastal tundra, and is the eastern-most habitat of migratory Atlantic salmon. The North Caspian is characterized by oligohaline ecosystems and is the global center for diversity and endemism of members of the genus Salmo, especially the bull trout (Salmo trutta). The Republic of Yakutia (Sakha Republic) in the Eastern Siberian Taiga has a WWF Global 200 Ecoregion namely the Arctic tundra-steppes in lake-beds. The area is endowed with extremely resilient and globally valuable pinaceous and larch forests. Sakhalin Oblast in the Far East provides habitat for the western gray whale (Eschrictius robustus), Steller's sea-eagle (Haliaeetus pelagicus) and Sakhalin taimen (Parahucho perryi). Further details on the biodiversity of these areas can be found in Annex B (Description of Demonstration Areas of the Project).

3. The state system for wildlife protection, which aims to protect rare species and significant ecosystems, and to promote sustainable use of biological resources through the development of specially protected natural areas (SPNAs), has been in existence for over a century. The system covers all natural zones, the main mountain massifs and some coastal waters. All together, Russia's natural ecosystems and their biological diversity are conserved through 15,000 SPNAs of various statuses that occupy more than 10% of the country's territory. Of these, 101 are federal reserves (zapovedniks) and 40 are national parks. As a system, even though there may be uneven distribution, the portion of land area protected by IUCN category is comparable to European levels[3].

4. However, as noted in Russia's 4th National Report to the CBD, there is a deceleration in the pace of development of the network of SPNAs (including marine reserves, national parks and zakazniks that

[1] Russia's Fourth National Report to the CBD (2009)
[2] Information from Russia's 4th National Communication to UNFCCC (2006); sequestration data are for 2004.
[3] Taken from WRI Earth Trends (2003) http://earthtrends.wri.org/pdf_library/country_profiles/bio_cou_643.pdf

protect aquatic ecosystems). A significant share of Russia's biological wealth will continue to exist outside the network of SPNAs. And, economic development will continue to place pressure on biodiversity outside protected areas. The current orientation of the economy towards natural resource exploitation is evidenced in the fact that export of minerals yields over 70% of currency income for the country. Biodiversity is by and large viewed as the source of a product that can be traded (such as timber, fish, peltry-ware); the value of natural ecosystems embodied in their biosphere function and ecosystem services are, thus far, not fully taken into account in the economic sphere. Damage to biodiversity from economic development is not being compensated fast enough by the establishment of new SPNAs. The annual increase in areas disturbed by economic activities is faster than the annual increase in extent of reclaimed lands. Most importantly, Russia's regions of globally significant biodiversity – namely the Arctic, Siberia, Far East, and Caucasus – are increasingly becoming the focus of energy development.

1.2 Energy sector context

5. Russia possesses great energy resources – its territory contains 1/10th of oil reserves, 1/5th of coal reserves and 14% of uranium reserves – and a powerful fuel and energy complex. Russia's current hydropower sector is second after China (46,000 MWt installed capacity). Russia's energy sector is the backbone of its economy, and it is expanding to support growing domestic and external energy demands. The key document that characterizes future development of Russia's energy sector is "Russia's Energy Strategy Through 2030" that was adopted by the Russian Federation Government Resolution 1715-p of November 13, 2009. The Strategy defines long-term development priorities for Russia's fuel and energy sector as a whole.

6. *Oil production sector*: The Energy Strategy sets forth new development milestones in the oil sector that correspond to the requirements of innovation-based development, as prescribed in the Long-Term Concept of Russia's Social and Economic Development. The Russian Federation possesses substantial reserves of hydrocarbons. Its forecast reserves of oil are estimated at 44 billion tons. However, the currently available mineral hydrocarbon feedstock is characterized by a diminishing amount of proven oil reserves, while the share of hard-to-recover reserves is increasing. Traditional oil production areas are now greatly exhausted. Further geographical expansion of production is expected, primarily in the North of European Russia, on the Arctic shelf, in the Yamal-Nenets Autonomous District, and in the North-Western part of Krasnoyarsk Krai. All the above-mentioned regions harbor globally significant undisturbed natural ecosystems and are known for extremely low environment resilience to technological impact. In this respect, the Energy Strategy includes a list of measures and defines strategic targets that will lead to sustainable development of the oil industry, provided that certain environmental and other restrictions are met.

7. *Coal production sector*: Russia has over 4,000 billion tons of coal reserves. This includes booked reserves as of January 01, 2008 of 272.6 billion tons (categories A + B + C1 = 193.3 billion tons and category C2 = 79.3 billion tons) and non-commercial coal in place of 50.2 billion tons. Power generating coal constitutes the majority of these resources (3641.9 billion tons or 89 %); coking coal amounts to only 445.6 billion tons or 11%. Most coal resources are located in Siberia (64 %) and the Far East (30%). The European part of Russia and the Urals account for 6%. As of January 01, 2008, explored deposits of coal suitable for open-pit mining amounted to 117.6 billion tons (61 %), which mainly include lignite coal (93.4 billion tons or 79.4%). 99% of the said deposits are located in Siberia and the Far East. Deposits of coking coal, suitable for open-pit mining, are estimated to be 3.2 billion tons or 2.7 % (mainly Kuznetsky and Yuzhno-Yakutsky basins). Development of coal production is planned to take place in the major basins i.e., Kuznetsky and Kansko-Achinsky. In the mid to long-term, apart from the major basins, coal production will be developed in new fields of Western Siberia and the Far East (Urgalskoye, Elegetskoye, Elginskoye and Apsatskoye). In addition, coal production may be developed in Seidinsky (The Komi Rupublic) and Sosvinsky (Khanty-Mansiysk autonomous area – Yugra) fields, and the Beringovsky coal basin (Chukotsky autonomous area), if found to be economically feasible. For achieving its strategic goals

in the coal sector the Energy Strategy envisages: (i) Development and implementation of technical procedures, raising requirements of coal fuel quality, including setting quality standards by types of coal consumption, certification of products and introduction of international quality standards at enterprises; and (ii) Consistently bringing environmental protection regulations for coal industry enterprises into compliance with international standards.

8. *Hydropower production sector:* As of January 2009, there were 117 hydropower plants and 2 pump-storage power plants owned by national generating companies, and 21 hydropower plants owned by various business entities, giving a total of 140 hydropower plants. In addition, there are an unknown number of small hydropower plants, each having a capacity of less than 500 kW. The significance of hydropower for the country's power industry is reflected in the fact that, in 2008, hydropower accounted for 20% of all installed power generating capacity, and 16% of power production[4]. Hydropower plants produce the cheapest electric energy and are often pioneer objects constructed in newly developed territories with a complex of facilities built around them subsequently. It is estimated that only 18% of Russia's hydropower potential is currently in use. The Energy Strategy of Russia (2003-2030) provides for an expansion of hydropower construction in the Northern Caucasus[5], primarily consisting of small and medium capacity hydropower stations. The largest hydropower facilities will be put into operation in South Yakutia on the Uchur, the Timpton, the Aldan and the Olekma rivers as part of the Yuzhno Yakutsky hydropower complex, potentially impacting on biodiversity-rich River systems in Southern Yakutia. This expected growth presents a serious threat of biodiversity disturbance. Due to their construction and operation technologies, hydropower plants in Russia are associated with large-scale biodiversity disruption.

1.3. Threats to biodiversity from the energy sector

Impacts on marine and freshwater biomes

9. Marine and freshwater biomes in Russia are being impacted by shelf-based oil extraction, oil spills, inundation related to large hydropower stations. Shelf-based oil extraction impacts sea habitats and coastal wetlands through spatial and acoustic disturbances at feeding, migrating, and spawning/ nesting areas. For example, oil extraction in Sakhalin was accompanied by dumping of drill waste into the sea, and acoustic and spatial disturbances that disrupted the feeding and migration practices of Gray Whales (*Eschrichtius robustus*), and caused disturbance at the spawning grounds of Pacific salmon. The Caspian oil fields are penetrating far into the coast generating conflicts with Ramsar sites hosting a number of important water birds. Oil spill security remains low in Russia. Most recent biodiversity disasters include the death of birds in Kerch (about 30,000) and on Sakhalin. In the Nenetsk Autonomous Okrug (NAO), oil transportation routes (and related pollution risk) overlap with migratory routes of the Atlantic salmon (*Salmo salar*). Particularly high risks to biodiversity result from oil exploration in the Arctic region that is characterized by difficult ice conditions and inadequate port infrastructure.

10. Large hydropower stations are inundating floodplain habitats, destroying canyon habitats, and disrupting fish populations. Currently, every 1 million kilowatt-hour of electricity generated by large hydropower stations results in inundation of 26.5 hectares of surrounding floodplain habitat. In the case of Mountain Rivers, there is a substantial impact on the adjacent canyons. The biodiversity implications of this threat are numerous, ranging from direct consequences such as loss of habitat, to indirect ones such as changes in the river ice cycles, opening access for poaching in previously inaccessible pristine areas, micro-climate changes, trauma among mammals and decline in population of species forced to concentrate in previously inaccessible areas along the river, changes in fish populations brought about by heating of water, and such. As an example, construction of the Bureiskaia hydropower station without attention to biodiversity concerns would lead to destruction of neighboring oak and black-alder forests,

[4] Rosgosstat, 2008
[5] Demand for electricity for the 2014 Olympic Games in Sochi is expected to drive the growth of hydropower in the Caucasus.

stands of the Korean Cedar Pine (*P. koraiensis*), habitats of globally threatened Hooded Crane (*Grus monacha*), Siberian Musk Deer (*Moschus mosciferus*), Siberian Grouse (*Falcipennis falcipennis*), Asian Black Bear (*Ursus thibetanus*), European Otter (*Lutra lutra*), and numerous plants. The construction of the Zeiskaia hydropower station on the Zeya has resulted in the disappearance of the endemic Lenok (*Brachymystax lenok*).

Impacts on terrestrial biomes

11. Terrestrial biomes in the RF are impacted by coal mining, extraction of terrestrial oil deposits, and oil transportation by pipelines and tankers. Open coal mining changes the composition of vegetation and bird and mammal communities. Regardless of the mining technology (open-pit or deep), coal mining is characterized by the following type of development: full destruction of biota at the production site, and location of housing infrastructure and road network, at least for the length of the company lifecycle; technogenic pollution of surrounding territories covered by natural ecosystems; and withdrawal of biotic territories for long-term storage of mining wastes. Impact of on-going mining is reportedly the largest on aquatic ecosystems adjacent to coal mines. The biodiversity richness index of rehabilitated coal-mines is extremely low. Most of the native species disappear or remain in extremely limited populations, and thus the overall species abundance at coal-excavated sites remains low after rehabilitation.

12. Extraction of terrestrial oil deposits destroy or undermine the resilience of habitats during construction of major facilities and access roads. By some assessments, every dollar invested in oil deposits in the Russian North destroys 3 square meters of natural ecosystems. A study of the impact of oil exploration sites in Western Siberia on bird populations concluded that the avifauna at boreal-forest oil explorations sites normally declines by 12%, and generally the avifauna becomes less representative of the Siberian type, and there is an increase in ordinary non-forest bird species[6]. Resilience of some ecosystems in the Arctic and tundra areas of Russia (e.g. globally valuable larch and pine stands in Sakha republic, and biodiversity of NAO region) may be compromised by expected oil exploration works.

13. Oil transportation by pipelines and tankers is accompanied by destruction and/ or logging. Incorrect routing of oil pipelines is another type of threat. In 2001, construction of the Russia-Turkey ("Blue Stream") pipeline resulted in destruction of 400 trees of rare pines (*Pinus Pallasiana* and *Pinus Brutia*), as well as 50 trees of *Juniperus oxycedrus* in Gelendzhik district[7]. Construction of oil terminals at Seas in the Northern Caucasus (Primorsko-Akhtarski district), and in Pechora Sea (the Varandei terminal) are prone to biodiversity risks. In the case of the former, the port, if placed as currently designed, will impact spawning grounds and habitat of several water birds from the neighboring Ramsar Site.

Threats to biodiversity from energy sector developments in demonstration areas

14. The **Kemerovo and Khakassia demonstration areas** are major **coal** regions with open and deep mining. Air pollution is the most pressing environmental issue. Industrial emissions into the atmosphere spread hundreds of kilometers away and fall out as acid precipitation in the Kuznetsky Ala-Tau foothills causing mass destruction of fir-trees (on hundreds of thousands of hectares) in the high mountains of Kuzbass. A wide range of polluting agents penetrates into the environment due to physical and chemical weathering of mountain rocks. Their transport across large distances transforms local environmental pollution into a regional one. The coal mining industry is a significant contributor to surface and ground water pollution. As a result of air and water pollution, natural landscapes are damaged due to destruction of vegetation and natural biogenesis. In addition, there is destruction of biota at the production site due to location of housing, infrastructure and road network related to the coal mining industry, at least for the length of the company lifecycle. Biotic territories are withdrawn for long-term storage of mining wastes. The impact of on-going mining is reportedly the largest on aquatic ecosystems adjacent to coal mines. On

[6] Vartapetov L.G. Environmental and economic assessment of the oil exploration on bird populations and of the effectiveness of protected areas for the conservation of avifauna in the Northern part of Western Siberia (in Russian).
[7] http://www.ewnc.org/?q=node/1060 (in Russian)

land disturbed by mining, microclimatic conditions have also changed because its surface covered by black coal particles gets heated more than ordinary land, which is accompanied by increasing evaporation and reducing relative air humidity. Even after rehabilitation has taken place, most of the native species disappear or remain in extremely limited populations, and thus the overall species abundance and the biodiversity richness index at coal-excavated sites remains low. Further, the transport of pollutants from disturbed lands by river flow and winds means that the negative environmental impact spreads to adjacent territories.

15. The **Nenetsk demonstration area** is seeing major **oil** explorations. Surface water and soil cover pollution with oil products leads to grassland degradation and deterioration of habitats of all tundra species. Discharge of drilling agents and emergency spills from sludge traps result in the spread of toxic clayey wastewater and saline depth water, changing radically permafrost, hydrological and hydrochemical conditions and destroying the natural soil and vegetation cover. The risk of emergency oil spills both on the ground and within water areas creates a potential (and often real) threat of considerable pollution with hydrocarbons. There are over 900 suspended wells, and in some of them, prolonged idle time creates conditions for dangerous spontaneous oil and condensate spills, which may eventually lead to oil outflow and create a direct threat to environmental safety in the region.

16. In shallow sea water, oil-containing toxic precipitation becomes a substrate for mussels, on which eider ducks feed thus accumulating hydrocarbons in their organisms. The habitats of sea mammals and the Polar bear are extremely vulnerable to oil extraction on the shelf and its transportation by sea. The fact that these species, especially the Polar bear, are at the top of the food chain, creates the threat of a cumulative effect of pollution (primarily organic and mercury pollution). Pollution of water reservoirs with soil suspension as a result of permanent presence of open ground in open-cast mines, road embankments and platforms for drill derricks prevents many species of invertebrates from normal existence.

17. The burning of accompanying oil products as fuel for electricity and heat production in power-generating facilities leads to massive spread of soot leading to changes in biochemical conditions for organisms and impacting the time of snow cover melt.

18. Uncontrolled hunting and fishing by local population and oil-field personnel is a serious limiting factor for many species. Disturbance of fauna is another important factor. Disturbance during movement in the tundra is a major threat to predatory birds, especially in the nesting period when laid eggs may perish because of long absence of birds in the nests. Intensive movement of helicopters creates disturbance for the Atlantic walrus, whose breeding grounds have been found in some coastal areas of the Pechora Sea.

19. The **Sakhalin demonstration area** in the Far East is also seeing major **oil** developments. Threats to terrestrial and freshwater ecosystems from oil developments include habitat fragmentation, deforestation, land use change, fires and pollution. Habitat fragmentation and alteration as a direct result of oil sector activities occurs as a result of construction of pipelines and associated access roads, construction camps and facilities. Physical and microclimatic changes that occur at the right-of-way (ROW) forest transition lead to changes in vegetation and fauna, most notably in the ROW itself, but also within adjacent habitat. The open spaces created by ROWs may function as barriers to movement for forest bird species, despite their high mobility. ROWs associated with forest roads and pipelines may also have significant effects on site productivity by removing and displacing topsoil, altering soil properties, changing microclimate, and accelerating erosion.

20. On Sakhalin, fragmentation of forested areas is of significance with respect to impacts on remaining areas of intact dark coniferous and well developed secondary forest. Besides the direct loss of habitat and related effects on species populations, there is a potential for increased access into primary and secondary forests and the implications that this could have with regard to increased disturbance and hunting/ poaching pressure.

21. Erosion and run-off from pipeline ROWs and associated infrastructure enters adjacent watercourses. This effect is at its greatest during and immediately following construction, both when pipeline laying takes place through watercourses and subsequently as a result of the opening up of the ROW and the exposure of the soil surface to the erosive processes associated with precipitation. However, this effect can also persist for prolonged periods in situations where exposed soil remains un-vegetated following clearance or, in the case of watercourse crossings, further erosion occurs as a result of bank instability due to poor construction practice and related changes to stream channel profile. Erosion from road surfaces, cut banks, and ditches represents a significant and, in some landscapes, the dominant source of sediment input to streams.

22. One of the most often cited and potentially detrimental ecological effect associated with linear corridors such as pipeline ROWs is the facilitated spread of invasive and undesirable species into previously ecologically intact areas. The construction of pipelines and associated infrastructure and subsequent maintenance, particularly in relatively intact habitats, represents disturbance that creates and maintains new edge habitat. In situations where ROWs are disturbed and maintenance is minimal, they can serve as ideal sites for the establishment and spread of invasive species, largely as a function of the large edge-area ratio and the disruption to ecological processes caused by construction and maintenance.

23. Oil spills in terrestrial ecosystems are known to have potential adverse effects on soil properties, plant communities and aquatic habitats. Oil spills in wetland areas may pose particular problems as a result of the transport and spread of oil via hydrological processes and the difficulty in clean-up of such areas. Although ground spills from pipelines may be significant, impacts from them tend to be localized. However, this may not be the case where oil is spilled at a river-pipeline crossing as any oil will quickly be transported downriver.

24. Construction works in the coastal and marine environment lead to: (i) Land take with consequent loss of habitat from intertidal or subtidal areas; (ii) Severance or fragmentation of areas (e.g. by the construction of barriers or causeways); (iii) Loss of marine flora or fauna and disturbance to habitats caused by extraction of material from the sea bed; (iv) Burial of marine flora and fauna by deposits on the sea bed; and (v) Noise and vibration disturbance to fish and marine mammals (for example from blasting or drilling operations). Most biological communities are susceptible to the effects of oil spills. Marine flora and fauna are subject to contact, smothering, toxicity, and the chronic long-term effects that may result from the physical and chemical properties of the spilled oil.

25. The **Yakutia demonstration area** is witnessing increasing **hydropower** developments with the planned construction of a hydropower station on the Timpton River. Anticipated impacts on the environment include: a) changed hydrological regime in the tail water of waterworks due to redistribution of the river flow (i.e., reduction of release into the tail water of dams in spring and summer and increase in winter); and b) inundation of the beds and floodplains of the Timpton River and its tributaries by water reservoirs and profound changes in the hydrological and hydro-biological regime in some parts of the river.

26. Major impacts on vegetation cover are likely due to mechanical destruction and disturbance (forest clearing during the preparation of reservoir floor, logging, filling, off-road movement of vehicles, etc.); change of vegetation due to habitat transformation without any visible damage (desiccation and inundation); surface pollution of vegetation or consequences of polluted water infiltration; possible fires including those associated not only with emergency situations but also with the presence of people; recreational loads (trampling down); uncontrolled hunting and fishing; picking of food, medicinal and decorative plants. Species diversity of vegetation as well as the composition and structure of plant communities change under the human-induced impact.

27. Construction of water reservoirs may have a negative impact on the customary lifestyle and reactions of animals: seasonal migration routes, change of watering places, wintering conditions, search of feed, etc. Combined with climate change, landscape changes may lead to deterioration of birds' nesting

conditions and influence migration routes of birds of passage. Winter inundation of lowlands due to water release from reservoirs may have a negative effect on the habitats of small animals.

28. Construction and operation of hydropower stations may produce a considerable impact on the entire population of terrestrial animals, primarily due to destruction of vast habitats, increased direct chase and disturbance, and construction of power transmission facilities. It should be taken into consideration that the Timpton River Valley coincides with the main flyway of practically all groups of birds and, therefore, a considerable number of birds when crossing the Aldan Upland stick to the river valley.

29. Given that development of the energy sector is going to continue apace, the major challenge continuing to face Russia is how to adapt energy sector development plans so as to meet energy goals, while at the same time not destroying its ecological wealth by putting in place mechanisms to avoid, reduce and remedy adverse impacts on biodiversity.

1.4. Legislative, institutional, policy and programming context

Legislative framework

30. Since 1991 Russia has adopted a large number of environmental laws and regulations including those directly regulating biodiversity conservation and sustainable use (see table below). Since 1995, when Russia ratified the CBD, the term "biological diversity" was integrated into the national legal system. As of today, there are almost 100 different legal acts and regulations using this term (mostly in a very general sense) and many more regulating different aspects of biodiversity without using this term. However, despite this, overall, the term is still not common in legal practice and in industrial environmental considerations. The key reason for that is the low priority given to the issue in comparison with "traditional pollution" issues.

Table 1. System of Federal Environmental Legislation (Federal Laws)

Sectoral laws (natural resources)	
Land	Land Code, 25 October 2001 г. No. 136-ФЗ
	On State Cadastre of Real Estate, 24 July 2007 No. 221-ФЗ
	On Land Transfer from one land category to another, 21 December 2004 No. 172-ФЗ
	On Land Boundary Survey, 18 June 2001 No. 78-ФЗ
	On State Regulation of Agricultural Land Fertility, 16 July 1998 No. 101-ФЗ
	On Land Amelioration, 10 January 1996 No. 4-ФЗ
Wildlife	On Wildlife, 24 April 1995 No. 52-ФЗ
Forests	Forest Code, 4 December 2006 No. 200-ФЗ
Water	Water Code, 3 June 2006 No. 74-ФЗ
Subsoil	On Subsoil, 21 February 1992 No. 2395-1
Marine bioresources	On Fishery and Conservation of Marine Bioresources 20 December 2004 No. 166-ФЗ
	On Exclusive Economic Zone of the Russian Federation, 17 December 1998 N 191-ФЗ
	On Internal Sea Waters, territorial Sea and Adjacent Zone of the Russian Federation, 31 July 1998 г. No. 155-ФЗ
	On Continental Shelf of the Russian Federation, 30 November 1995 No. 187-ФЗ
Environmental protection laws	
General	On Environmental Protection, 10 January 2002 No. 7-ФЗ
Environmental assessment	On Ecological Expert review, 23 November 1995 No. 174-ФЗ
	City Planning Code, 29 December 2004 No. 190-ФЗ
Wastes	On Industrial and Consumption Wastes, 24 June 1998 No. 89-ФЗ
Areas of special concern	On Specially Protected Natural Areas, 14 March 1995 No. 33-ФЗ
	On Natural Medical Resources, Therapeutic Areas and Resorts, 23 February 1995 No. 26-ФЗ
	On Territories of Traditional Use of Indigenous People of the North and Far East of the Russian Federation, 7 May 2001 No. 49-ФЗ
	On Lake Baikal Protection, 1 May 1999 No. 94-ФЗ
	On Cultural Heritage, 25 June 2002 No. 73-ФЗ
Atmosphere protection	On Ban for Production and Transactions of Leaded Gasoline in the Russian Federation, 22 March 2003 No. 34-ФЗ

	On Atmospheric Air Protection, 4 May 1999 No. 96-ФЗ
Other laws regulating some aspects of environmental conservation	
Liabilities	Administrative Code, 30 December 2001 No.195-ФЗ
	Criminal Code, 13 June 1996 No.63-ФЗ
Funding	Tax Code
	On federal budget for 2010 and planning period of 2011 and 2012, 2 December 2009. No.308-ФЗ
Energy efficiency	"On energy savings and increase of energy efficiency and amendments to some legal acts of the Russian federation, 23 November 2009 No.261-ФЗ
Biosafety	On state regulation of genetic engineering, 5 July 1996 No. 86-ФЗ
	On quarantine of plants, 15 July 2000 No. 99-ФЗ
	On safe operations with pesticides and agrochemicals, 19 July 1997 No.109-ФЗ
Indigenous people	On guarantees for the rights of small indigenous nationalities of the Russian Federation, 30 April 1999 No.82-ФЗ
	On general principles of organization of indigenous communities of small nationalities of the North, Siberia and Far East of the Russian Federation, 20 July 2000, No.104-ФЗ
Industrial safety	On safety of hydrotechnical installations, 21 July 1997 No. 117-ФЗ
	On industrial safety of hazardous industrial facilities, 21 July 1997 No. 116-ФЗ
Other	On protection of people and territories from natural calamities and technological emergency situations, 21 December 1994 No. 68-ФЗ
	On population sanitary and epidemiological welfare, 30 марта 1999 г. N 52-ФЗ

31. The Russian legal system is predominantly built on a framework of federal laws, and supplemented by a very significant set of sub-laws at the level of central government and sectoral ministries. (The hierarchy of the current Russian legal system, as well as the current system of federal environmental laws is presented in Annex C.) According to the Constitution, environmental issues are subject to joint authority at the federal and regional level. Thus, each region is authorized to adopt relevant environmental regulations including regional laws (under condition of no contradiction with federal regulations). Every region of Russia has its own regulations which may significantly add to the federal norms based on regional specifics.

32. Biodiversity conservation requirements are directly included in some federal laws and declared as one of the priorities (especially legislation related to forests, wildlife, marine biological resources and protected areas). Biodiversity conservation is:

- recognized as an essential prerequisite for meeting needs of current and future generations and as an integral part of ecological security (Law on Environmental Protection);
- recognized as one of the principles of environmental protection (Law on Environmental Protection);
- declared as a principle of forest legislation (Forest Code); and
- declared as a principle of state policy on wastes (Law on Industrial and Consumption Wastes).

33. In most cases, legislation (especially on industrial and sectoral development) uses the more general term “environmental conservation” and considers biodiversity issues as part of it. For example, the subsoil law does not use biodiversity terminology. The key general environmental requirements for each and every sector of industry, including the energy sector, are established in the Federal Law on Environmental Protection. Specific requirements of each sector are established in sectoral regulations. Both the Criminal Code (chapter 26 on Ecological Crimes) and Administrative Code (chapter 8) contain a number of provisions for environmental violations including biodiversity related violations. In most cases, punishment for “biodiversity related” offences is less than for “traditional” environmental, resource and pollution issues. The overall analysis of Russian legislation in terms of biodiversity conservation, points to the following conclusions:

- biodiversity related legislation in Russia is comprised of federal and regional acts reflecting Constitutional provisions for joint power;

- biodiversity conservation is declared as a priority and principle of state environmental policy in a number of regulations and policy documents;
- biodiversity as a legal term is still not common in sectoral legislation related to industrial development as well as in liability, but was introduced into wildlife, forest, fishery and protected area regulations;
- biodiversity is predominantly considered within the general term "environment" and as an essential part of "environmental conservation";
- biodiversity is an obligatory part of EIA content;
- there are no indicators and reflection of biodiversity in state statistics; and
- the calculation of damage to biodiversity is based on natural resource loss principles.

34. Of this extensive body of environmental legislation, there are two pieces of legislation that are particularly important when considering mainstreaming of biodiversity conservation considerations into energy sector policies and operations. These relate to Environmental Assessment (On Ecological Expert Review, 23 November 1995 No. 174-ФЗ) and Territorial Planning (City Planning Code, 29 December 2004 No. 190-ФЗ).

35. Environmental assessments: Russia has established national procedures for assessing environmental impacts of economic projects, or any other activity that may have direct or indirect impacts on the environment (Annex D summarizes existing laws, procedures and institutional responsibilities related to environmental assessment). All such projects will be subject to an Environmental Impact Assessment (EIA), followed by a State Expert Review. Some projects (or parts of projects) will be subject to an additional review – the State Environmental Expert Review – in accordance with the approved lists of projects subject to the aforesaid reviews (these are predominantly off-shore activities or operations within protected areas). Key biodiversity elements are required to be covered in the EIA as well as presented for the State Expert Review as a part of project documentation. However, the issue is quality and completeness of information provided in the EIA (by consultancies and project design companies). The emphasis is on meeting the minimum requirements of state authorities. The key gap is not the description of biodiversity (usually this is the most lengthy part of the EIA report) but rather the full assessment of and proposals for options for more appropriate mitigation measures.

36. Territorial planning: Town-planning laws in the Russian Federation require that territorial zoning (planning) be conducted, and one of the tasks of territorial planning is to ensure effective conservation of natural complexes and sites (Annex D provides a description of the existing laws, procedures and institutional responsibilities for territorial planning). The laws also require that the future location of certain type of objects be indicated so that this can serve as a basis for future planning, and make it possible to study and assess the acceptability of placing a certain object in a specific territory.

Policy framework

37. In addition to the legislative framework described above, there are two key policy documents, which, even though they have no legally binding power, provide general background for biodiversity conservation. These are the National Biodiversity Conservation Strategy and the Ecological Doctrine of the Russian Federation. The National Biodiversity Conservation Strategy (developed in 2002) determines key topics and ecosystems for priority conservation and includes some mechanisms. The Ecological Doctrine of the Russian Federation (adopted by the regulation of the RF Government on 31 August 2002 No. 1225-p) recognizes biodiversity as a condition for human existence and its conservation as one of the key goals of the state environmental policy. Biodiversity is considered as a specific component of the national environmental policy – Conservation and Restoration of Natural Environment. It has 5 key priorities: i) conservation and restoration of ecosystems, ii) conservation and restoration of rare and endangered species, iii) development of protected areas, iv) preservation of ecosystems integrity and

prevention of fragmentation by hydrotechnical, transportation and energy linear infrastructure, and v) conservation and restoration of biological and landscape diversity on anthropogenically modified areas.

38. The key policy document that characterizes future development of Russia's energy sector is "the Energy Strategy of Russia for the Period Up to 2030", adopted on November 13, 2009, which defines long-term development priorities for Russia's fuel and energy sector as a whole. Under this strategy, expansion of energy production is expected to meet growing domestic and international demand (as highlighted in the Energy Sector Context section above). These future developments in the energy sector are going to have an impact on biodiversity. Indeed, the "Key Guidelines" section of the Energy Strategy stresses that the energy industry is one of the main sources of environmental pollution, accounting for over 50% of emissions of pollutants into the atmospheric air, and over 20% of wastewater disposal to surface water bodies. Recognizing the importance of environmental safety, the policy goal is continuous limitation of fuel and energy complex stress on ecology and climate by reducing pollutant emission (dumping) into the environment, greenhouse gas emission reduction, and reduction of consumer and production waste.

Institutional framework

39. Environmental issues in Russia are under the joint power of the federation and regions (Article 72 of the Constitution). There are several State Ministries, Services and Agencies with responsibilities at the interface of biodiversity and the energy sector (see table below). On the issue of mainstreaming biodiversity conservation considerations into the energy sector, the key federal-level actors are the Ministry of Natural Resources and Ecology, Ministry of Energy, and Ministry of Regional Development. Federal Ministries are authorized to issue regulations and submit, via federal government, draft federal laws to the State Duma (lower house of Parliament) for consideration. A more detailed explanation of the current system of organization of executive power in Russia at the federal level is in Annex E.

Table 2. Institutional Responsibilities for Biodiversity and Energy Sector (Federal Level)

Issue	Main Institutional Actors
Subsoil and mineral resources	Ministry of Natural Resources and Ecology / Federal Subsoil Agency
Forests	Ministry of Agriculture / Federal Forestry Agency
Wildlife (game species, Red Data Book species)	Ministry of Natural Resources and Ecology / Federal Service on Environmental Management Control
Marine and freshwater bioresources	Federal Fishery Agency
	Federal Security Service
Protected areas	Ministry of Natural Resources and Ecology
EIA	Ministry of Natural Resources and Ecology
	Ministry of Regional Development
State Environmental Expert Review	Ministry of Natural Resources and Ecology / Federal Service on Environmental, Technological and Nuclear Control
State Expert Review	Ministry of Regional Development
Energy resources	Ministry of Energy
Environmental pollution	Ministry of Natural Resources and Ecology / Federal Service on Environmental, Technological and Nuclear Control
Indigenous communities	Ministry of Regional Development
Environmental monitoring	Ministry of Natural Resources and Ecology / Federal Service on Hydrometeorology and Environmental Monitoring

40. Every region has its own bodies responsible for biodiversity and natural resources, within the structure of the regional governments. The names of such bodies vary from region to region. They have authority in accordance with relevant federal laws (each resource law describes issues to be covered at federal and regional levels). For the project's pilot regions these are generally public authorities with responsibilities for Veterinary and Phytosanitary Surveillance; Nature Management Surveillance; Preparation of Water Reservoir Sites at Hydropower Stations; Natural Resources and Environment;

Forestry; Education and Science; Wildlife Protection; Territorial Environmental Management; and International and Interregional Relations, Information and Communication (A more detailed explanation of the key regional institutions in the project's demonstration areas is in Annex E.)

1.5 Baseline activities for mitigating threats to biodiversity from the energy sector

41. Under the baseline scenario, oil, coal, and hydropower facilities in Russia will not give adequate attention to the biodiversity risks outlined above. The EIA process requires reporting on biodiversity information. However, in practice, the quality and completeness of information is deficient. This is not so much in terms of the description of biodiversity in the area but more so in terms of a full assessment of impacts on this biodiversity (for example, inclusion of impacts on adjacent territories from blowing of coal dust) and proposals for appropriate mitigation measures. Further, for biodiversity risks that may be assessed, the emphasis will be on a reactive approach by focusing on remediation ("recultivation"), where this is possible, and not on a preventative approach that emphasizes avoidance, reduction, or offsetting biodiversity losses caused by energy facilities. Investments by private companies and corporations on resolving environmental issues will continue to be mostly for so-called "brown field projects" (construction of treatment facilities, reduction of air pollution, recultivation of lands etc.). There are leaders in each sector that drive technological modernization and search for better practices that minimize adverse impacts on biodiversity (primarily due to international investment interests, involvement of international partners in management, requirements of lenders, and such). However, other companies – majority of which are in the local market – are not following suit and adopting these improved practices.

1.6. Desired long-term vision and barriers to achieving it

42. The expected exponential growth of Russia's energy sector means a potential further rise in threats to biodiversity. Whether and to what extent these threats materialize depends on if the baseline course of action is corrected to address biodiversity risks. The desired long-term solution is for Russia to adapt its legislation and policies to include legal requirements for energy sector actors to take into consideration biodiversity conservation, and to develop and test technologies to implement these requirements in each industry. By so doing, Russia will be able to both minimize the adverse impact of energy sector development on biodiversity, and motivate positive actions to conserve biodiversity. There are two main barriers that hamper the realization of this long-term solution.

<u>Barrier 1: The current legal and policy environment promotes quick maximization of financial returns in the energy sector, underestimates biodiversity risks, and excludes positive incentives for biodiversity-friendly investment.</u>

43. <u>Methodological basis for addressing biodiversity concerns in the energy sector is still weak</u>: Biodiversity conservation is recognized in Russia's legal framework but is not accorded adequate priority, especially in the industrial sphere. It is given a lower priority in comparison with "traditional pollution" issues. The low priority of biodiversity conservation is linked to the poor methodological basis for full recognition of adverse impacts on biodiversity of energy sector activities and full implementation in practice of an avoid-reduce-remedy approach (a few environmental areas such as protected areas of endangered species are the exception). For example, environmental security is mandated by the "Methodological recommendations and regulations for the assessment of investment projects", but the only biodiversity risk addressed is that of floodplain inundation impact on ecosystems by large hydropower projects, failing to address the variety of other risks.

44. There are no legal instruments or precedents for making biodiversity agreements between the government and energy companies for ensuring no net loss in biodiversity. Such biodiversity conservation objectives could be included in a licensing contract for the lifecycle of an energy project to maintain ecosystem integrity under which various tools such as biodiversity offsets, biodiversity

mitigation banking, payments for environmental services, and others can be used to ensure no net loss of biodiversity, or even net gains.

45. Limitations in the law with regard to post-excavation restoration. The federal Law on Environmental Protection, Sub-surface Law, and Land and Forest Codes obligate oil and coal companies to restore land after resource extraction. However, the policy on post-excavation ecosystem restoration (e.g. for coal projects) operates almost exclusively with two "re-cultivation" approaches – establishing a water reservoir or monoculture forest plantations, which results in species impoverishment and "ecosystem decay". As a result, "restored" ecosystems are unable to support native endemic and rare species. There is a lack of a clearly defined methodology for pre-project determination of appropriate restoration of ecosystem services and biodiversity. With an ecosystem approach to assessment and management of the energy project, a cost-effective strategy for restoration could be developed from the outset of the project. The end goal does not necessarily need to be the exact ecosystems that were originally on the site, but the end goal should reflect the ecosystem and species needs of the ecological region. An example of biodiversity simplification under the current system is the Upper Angara coal extraction sites that were partly reforested and partly waterlogged, resulting in a substantial increase in common water-bird or forest species that were previously unknown or rare in the forest-steppe ecosystem.

46. Obsolete and outdated regulations for the Coal sector. In Russia, coal-mining enterprises are classified as hazardous facilities. Their operation is currently governed by quite a number of regulatory and procedural documents. Preliminary analysis has revealed some 500 historical and present day documents regulating compliance with environmental protection and rational use of natural resources. Neither the structure nor content of the documents has been reviewed. Therefore, along with the recently adopted documents, the documents issued in the 80-ies and even 70-ies have still not been repealed. Given the discrepancies in the current documents adopted at different points in time, some of them have proven to be entirely unusable due to fundamental changes in the government environmental management structure. In addition, nature protection measures are developed without accounting for the need for biodiversity restoration, and changing this practice shall require development of new (or review of some of the existing) regulatory documents and demonstration of processes. Further, there is essentially no regulatory and procedural framework for environmental protection as applied to decommissioning/ restoration of mines and strip-pits.

47. Strategic planning documents for the energy sector at the federal, regional and sectoral levels do not accord proper importance to biodiversity issues. The underlying reasons for this are that, when forecasting energy sector development, ecosystem and biodiversity information is not available to planners, there are no appropriate and approved models for taking biodiversity standards and requirements in to account, there are no clearly defined methodologies for taking an ecosystem management approach to biodiversity conservation in landscapes modified by energy sector projects, and there are no databases on best management practices for mainstreaming biodiversity conservation in the energy sector that planners can make use of. While on the one hand it is an issue of availability of tools and methodologies, on the other hand there is also an issue of awareness, understanding and willingness on the part of the planners to introduce the best available tools and methodologies in to strategic planning and project design. There is a lack of a national standard "Environmental assessment of strategic planning documents in the energy sector". The Standard should be prepared in line with the EC Directive 2001/42/EC "On the assessment of the effects of certain plans and programs on the environment".

48. Territorial planning does not fully take into account biodiversity conservation needs. As highlighted in the baseline section above, all regions with a heavy emphasis on energy industry will revise, in the next 10 years, their territorial plans to align them with "sustainable development" principles. However, this process is taking place without overlaying ecosystem maps, which would be a vital input into identifying areas where energy industry development should be avoided and where extra attention and additional measures are warranted to reduce biodiversity impacts and careful monitoring of the ecosystem. The Russian Federation has a rich history of ecosystem mapping and classification. Most

ecosystems have been classified and mapped or can be easily modeled from satellite imagery. These maps exist in various Institutions in Russia (some are digitized but many are not). There is no central place to access the information. There is no clearly defined planning approach or requirement for the utilization of ecosystem maps and biodiversity information to inform the development of territorial plans such that biodiversity considerations are taken in to account.

49. The EIA process does not adequately address biodiversity conservation considerations. Even though Russia has established national procedures for assessing environmental impacts of economic projects, or any other activity that may have direct or indirect impacts on the environment, and biodiversity is an obligatory part of EIA content, there are still some barriers to fully integrating biodiversity conservation considerations into all phases of energy sector investment projects. There have been changes in the preparation procedure and content of energy sector projects documents (including issues pertaining to environmental impact assessment),[8] that make it more difficult to incorporate biodiversity conservation actions. Environmental Assessment procedures (these are outlined in greater detail in Annex D) require all such projects to be subject to an EIA, followed by a State Expert Review. Some projects (or parts of projects) will be subject to an additional review – the State Environmental Expert Review – which differs from the State Expert Review in terms of the depth of coverage of environmental aspects. The table in Annex D highlights these differences. The main weaknesses in the current EIA procedures are:

- *Requirement to subject a project to a State Environmental Expert Review has become more lenient:* The mandatory principle requiring a State Environmental Expert Review for any business or other activity that may have a negative impact on the environment, or present a threat to life, health or property of people was deleted (with effect from 1 January 2007) from the federal law "On environmental protection". The wording that replaced it is as follows "mandatory inspection of design and other documents to be carried out pursuant to the Russian Federation laws". Since then, for the majority of projects, the amended Town-planning Code contained the provision that only a State Expert Review was to be carried out for design documents and engineering survey reports. Beginning on 1 January 2007, the State Environmental Expert Review has been conducted only for a small range of entities. For example, the design documents for onshore capital construction are no longer subject to the State Environmental Expert Review, unless the objects are to be located in specially protected natural areas.
- *Lack of procedures and state requirements for risk assessments:* There is no real procedure and no state requirement for real risk assessment of energy sector projects prior to moving the project to the EIA process. Some companies try to develop their internal corporate procedures for risk assessment, but there is no systematic national guidance on this.
- *Timing of EIA:* The established practice is that the EIA for energy projects is conducted after the economic and technical design has been developed, when it is actually too late or difficult to modify the project. As projects of large scale are monitored by high level of Russian Government in too many cases the nature of the development of the EIA "forces" it to be lenient to the technical and economic parameters of the project and so to confirm its safety 'in general' but not consider biodiversity conservation.
- To date the *procedure for transfer of the materials during the State Expert Review* to the State Environmental Expert Review has not been defined by any regulation. This creates a need and an opportunity to define the processes to include biodiversity conservation as a key aspect of the process.
- *Public participation and public involvement in project design and EIA discussions and decisions is not sufficient.* Such public participation could significantly improve the quality of EIAs in terms of reflecting biodiversity issues.

[8] These changes have been brought about by amendments to the Town-planning Code of the Russian Federation (Federal Law "On Environmental Impact Assessment" and provisions of the RF Government Resolution Number 87, dated 16.02.2008).

- *Classical (soviet) design institutes are still not familiar with internationally acceptable ESIA processes and products*. Further, they do not place adequate attention to the inter-linkages between biodiversity and climate change i.e., the increased stress placed on biodiversity due to a changing climate.
- *Terms of reference for EIAs* (when dealing with external consultancies and especially design institutes) prepared by energy companies do not adequately cover biodiversity issues. The quality of the EIA could be improved by educating companies in the preparation of comprehensive terms of reference.
- *Coal sector EIAs continue to disregard important environmental factors.* Environmental monitoring has shown that some factors are effectively disregarded in EIA procedures for the coal-mining industry and these factors have a negative effect on biodiversity. Among them are: coal dust blowing on the adjacent territories during the storing process (in coal storage facilities) and coal transportation by railway and from dumping sites; pollution from coal-fired power plants covering large territories and having an adverse impact on biodiversity. These and other negative impact factors are prevalent and associated with the Khakassia and Kuzbass natural conditions (strong winds and open terrain). Best practices are not followed in assessing the full transboundary effects and modeling of air pollution.

50. Damage compensation policies are not an adequate deterrent for energy companies. The present ecosystem damage compensation policies do not reflect full costs of biodiversity loss. Under the current policy, compensation payments from energy developers are "actual payments charged per individual of a fauna species lost as a result of the project". The logic of the policy obviously misses the intent of biodiversity conservation and does not account for the large menu of ecosystem goods and services. Even in terms of properly enforcing the current policy, there is no effective methodology for calculating population losses translated to "individuals of a species" lost as a result of the project. It is simply impossible to effectively calculate pre-project population levels accurately. Another element missing is the assessment and compensation for potential incomes from traditional land use that indigenous communities forego due to the development of large-scale energy projects. An example is the change in the microclimate created by the hydro cascades in Dagestan Caucasus that results in the loss of agricultural vineyards and orchards. Another example is the loss of reindeer pasture due to oil infrastructure.

51. Incentives for energy companies to invest in avoiding-reducing-remedying impacts on biodiversity are limited. Energy companies' investments in environmental protection are mostly limited to pollution prevention and compensation and remediation activities, and not much with biodiversity conservation. General statistical, corporate and market report formats required by the Government (Form 4-OC "Expenditures for environmental protection") do not differentiate investment in biodiversity conservation from other environmental protection investments. There are also no positive economic incentives to invest in biodiversity, such as tax benefits. Key incentives are limited to fiscal compliance and NGOs playing a watchdog role that motivates companies to undertake biodiversity conservation efforts. The desire of Russian energy companies (for example, Gasprom or Lukoil) to enter Western markets, especially retail, may provide some incentive. Some companies also view biodiversity conservation projects as charity, and undertake them as part of their corporate social responsibility or sustainability programs.

Barrier 2: Inadequate knowledge, technology and management culture

52. Available knowledge on biodiversity is limited to protected areas and rare species and is not applied towards developing effective mitigation measures: Although, within the Russian Federation there is significant amount of biological information collected that includes long-term wildlife population studies and well founded classification of ecosystem diversity and disturbance, little or none of the information is available in usable formats or accessible by energy sector companies or ministries in charge of developing EIAs. Moreover, the available knowledge/ guidance on biodiversity are limited to rare species and protected areas. There is no real assessment of biodiversity costs. Even when

hydropower, coal, and oil industries have information on biodiversity from the EIAs, the tendency is to not take this into account at all or undertake mitigation measures that are inadequate and insufficient yet allow reporting as general compliance. Exemptions include situations with protected areas and rare species which attract state or public attention. As examples, oil developments in the North and East of the country disregard impacts on whale and salmon habitats, and hydropower plants are developed without heed to the requirements of fish and floodplain mammals and plants or the need to regulate flows for natural ecosystem disturbance regimes. Protests against biodiversity risks of energy projects from the scientific and NGO communities are typically post-facto reactions to threat realization, while at the time when the energy project is being developed biodiversity studies within the overall EIA are either ignored or are too general to ensure biodiversity security. What is missing is a full assessment of and proposals for options for more appropriate mitigation measures.

53. Continued use of obsolete technologies even though biodiversity-friendly technologies are available. While Russia is undertaking significant efforts to advance its technological levels in its priority fields of economic development, the know-how for biodiversity risk prevention and mitigation in energy extraction/ production and transportation is ecologically inadequate. Few new environmentally sound technologies for minimizing biodiversity impacts have been introduced into the energy sectors in Russia. The scarcity of research-and-development investment by the oil industry in Russia is causing prolonged industry dependence on obsolete technologies. Energy investors tend to apply limited working capital to priorities other than biodiversity conservation, and to invest in biodiversity-friendly solutions is perceived as a burden on their income statement, not as an opportunity to increase stock price, or ensure longer-term financial solvency by reducing long term costs.

54. Even foreign companies entering the Russian market often perceive the Russian public as "ecologically ignorant" and attempt to enforce less expensive and more risky technologies or try to avoid placing a technology compliant with biodiversity security (examples include attempts of a group of companies including Exxon Mobil and Shell to avoid underground piping of drill waste in Sakhalin, which is otherwise a standard Best Available Technology used in Alaska, North Sea and similar environments elsewhere in the world). There are multiple international and national compendia on developing planning processes as well as information on the latest technologies that are more biodiversity-friendly but the transfer, which could take place quite efficiently by tapping into the resources of International Business Associations, is not taking place.

55. When energy sector investments are defined by the use of old technologies by local developers or lack of appropriate technologies by foreign companies, for example in the Arctic sea-shelf and coastal areas, Eastern Siberia, Caucasus and other biodiversity hot-spots, they immediately encounter resistance from local authorities and NGOs. This status-quo of investors promoting projects with obsolete technologies is unsustainable, and technologies have to change. As one of the most relevant examples, the current Arctic oil extraction and transportation projects often miss the opportunity to incorporate the know-how for drilling and physical infrastructure adapted for permafrost (for now as well as for the future when climate change may trigger permafrost melt). This (globally) relatively new area of research has basic importance for the northern oil energy projects in Russia and for the ecosystems it may impact, as inappropriate technologies (such as extensive land clearance, inadequate choice of construction materials) might result in habitat infringement and species composition changes in globally important Arctic species and in climate-caused infrastructure breakdowns and spill accidents.

56. Management culture of energy companies is dissociated from managing biodiversity risks. Energy companies that work internationally have been exposed to new technologies and Best Management Processes, as well as to the international community's expectations regarding biodiversity conservation. But a systematic approach to creating an organizational culture of new technology and management processes has not occurred. Although knowledge and technology are important, a critical barrier is the management culture in both companies and agencies that at present is not geared to develop, manage and continually improve processes aimed at biodiversity conservation. This requires transparency and an

internal culture of truthful monitoring and continuous process improvement or adaptive management strategies, risk assessment and strategy planning.

2. PROJECT STRATEGY

57. The Government of Russia is requesting GEF support to remove these barriers and put in place an enabling environment for achieving progressive mainstreaming of biodiversity conservation considerations in oil, coal and hydropower sector operations. Based on assessments conducted through PPG resources and consultations with stakeholders, the project strategy will pursue actions at the systemic level and will also demonstrate mainstreaming actions in Nenets, Sakhalin, Northern Caspian, Yakutia, Kemerovo, Khakassia. Activities at the systemic level will help ensure that the enabling environment is in place for progressive mainstreaming actions even after project-end. Actions at the pilot site level will enable stakeholders to "ground truth" the new legal and policy frameworks, and test and develop new tools for mainstreaming. The project design is based on the following principles.

- The need to focus on all 3 energy sub-sectors that account for the lion's share of energy production in Russia – oil, coal, hydropower – to mainstream biodiversity considerations into management practices. The project is the first of its kind in Russia and, given the systemic changes this entails, it is important to engage all three sectors together in the policy dialogue. At the same time, in order not to spread resources too thin, the project will take on limited field demonstrations in these sectors.
- The need to take a unified approach in these sectors on some aspects: Each energy sector has a unique set of issues that must be addressed, but there are also some key similarities such as the need for an ecosystem and biodiversity assessment process, and a biodiversity and ecosystem services valuation methodology. In the interest of efficiency, similar issues need to be addressed together.
- The need to take a differentiated approach in these sectors on other aspects: While there may be similarities in overall approach and processes across the sectors, the application will differ by energy sector. Therefore, the project needs to demonstrate and apply best management practices in each sector. For example, developing an ecosystem assessment and valuation is a similar process for the various sectors; but because each energy sector then disturbs/ impacts the ecosystem in very different ways the use of the assessment and valuation will be applied to the selection of best management practices for biodiversity conservation, and related agreements in a very different way.
- The need to cover a range of ecosystems (arctic terrestrial, marine, taiga forests, mountains) to reflect peculiarities of each: The application of best management practices will differ by the ecosystem being disturbed. Therefore, the project will cover a range of ecosystems in its demonstration activities. This will generate a diverse set of experiences with reducing impact on biodiversity in different ecosystems.
- The need to combine policy reform, institutional strengthening and on-the-ground demonstrations: Policy reform needs to be informed by ground realities, and the demonstration projects will help provide this vital feedback loop. Good policies will be of limited use if capacities to implement the policies are lacking and so the project needs to focus on strengthening the capacity of institutions to implement the improved policies. Demonstration projects will be of limited use unless accompanied with capacity building and training that can transfer the skills to a wider circle of practitioners who will be critical agents for replicating project successes.
- The need to partner with the appropriate government agencies and contract firms to develop the ecosystem approach for biodiversity conservation within the EIA framework, and with the company and contractors (that carry out much of the work).
- The need to implement demonstration projects in partnership with private companies: Ultimately, we are aiming for spontaneous adoption of biodiversity-friendly management practices which will

only occur if the energy companies are convinced that the practices are beneficial to them – be it directly to their financial bottom-line or indirectly by raising their public image. Therefore, the project must partner with companies to implement the demonstrations. In addition, one of the major benefits for companies will be greater "business certainty".

- The need to engage government at all different administrative levels: The project will require the engagement of all levels because different proposed activities will require different level of decision making. Some proposed changes in regulatory environment are more practicable at the federal level but many others need to occur only at the regional level. Many regions can play a key role in mainstreaming biodiversity, can be more receptive to changes, and can introduce innovative approaches without having to wait for top-down changes from the federal level.

2.1 Conformity with GEF Policy

58. The project adheres to GEF SO-2 SP-4 "Strengthening the Policy and Regulatory Framework for Mainstreaming Biodiversity". Specifically, the project targets Russia's oil, coal and hydropower sectors. Russia's energy sector is the backbone of its economy, and it is expanding to support growing domestic and external energy demands. Component 1 amends the EIA regulations, as well as a number of national laws relevant for mainstreaming of biodiversity in the oil, hydropower and coal sectors. It also invests in building the capacity of key stakeholders for the design and implementation of biodiversity threat mitigation measures. In order to build positive capacities and experience, Component 2, 3 and 4 will deal with technology testing in the selected energy sectors, demonstrating viable approaches to avoidance and reduction of biodiversity damage in energy projects.

2.2 Country Ownership: Country Eligibility and Country Driven-ness

2.2.1 Country Eligibility

59. The Government of Russia signed the UN Convention on Biological Diversity (CBD) on 1992-06-13 and became a party to the Convention on 1995-04-05. It has met various reporting requirements under the CBD. It is eligible to receive funding from the GEF. It is also eligible to receive development assistance from the World Bank and UNDP.

2.2.2 Country Driven-ness

60. The Government is reinforcing the environmental sustainability of its energy sector, and the Presidential Order 889 dated 4 June 2008 "On measures to increase energy and environmental effectiveness of Russian economy" defines a direct link between environment protection objectives and energy industries. Russia's National Biodiversity Strategy and Action Plan recognizes that the key threat to its biodiversity is "destruction and disturbance of habitat"[9]. The scale of biodiversity priorities to be tackled under the NBSAP places "oil and gas extraction and transport, exploratory drilling for oil and gas in coastal areas and on shelf" as one of the key concerns in the Russian Arctic, for which it claims "Russia bears global responsibility". In the NBSAP, "inappropriate allocation of forest stands for mining, building of roads, other linear structures, and degradation of forest stands under the influence of discharges from smelters and power stations" are among top 5 key problems for tackling in forest ecosystems. The hierarchy of priorities for marine and coastal ecosystems starts with need to deal with "(i) pollution by hydrocarbons and drilling fluids, (ii) inappropriate engineering works and mining activities in the coastal zone"; for freshwater ecosystems areas of priority for biodiversity are (i) hydroengineering works, (ii) pollution as a result of oil development. Finally, for peatland ecosystems, NBSAP puts first priority on the need to deal with "changes in the natural hydrological conditions as a

[9] https://www.cbd.int/doc/world/ru/ru-nbsap-01-p4-en.pdf

result of construction of roads, oil and gap pipelines, hydrotechnical works". NBSAP, therefore, makes clear the need to mainstream biodiversity into energy sectors at all stages of energy cycles.

2.3 Project Goal, Objective, Outcomes and Outputs

61. The long-term goal towards which the project will contribute is that energy sector operations in Russia have improved capacity to minimize their adverse impacts on biodiversity so that the conservation prospects of the affected ecosystems are greatly improved. The immediate objective of the project is to mainstream biodiversity conservation priorities into Russian energy sector development policies and into the operations of energy production sectors through pilot activities in 6 demonstration areas of the country.

62. The project includes 3 pilot demonstrations in the oil sector (Nenets Autonomous Okrug or NAO, Sakhalin Oblast and Northern Caspian/ Astrakhan and Kalmykia Oblasts), 2 pilot demonstrations in the coal sector (Republic of Khakassia, Kemerovo Oblast), and 1 pilot demonstration in the hydropower sector (Republic of Yakutia, southern part covering Aldan and Nerungri Rayons). These areas have been selected because they represent regions harboring globally significant biodiversity that have also been identified as focus regions for energy sector development. Selection is based on discussions with key energy companies and regional administrations. (See Annex B for a detailed description of demonstration areas.)

63. Pilot demonstrations that focus on the gas sector are not included to limit the already ambitious scope of the project and partly because gas sector impacts are smaller than oil sector impacts. The project's institutional and regulatory work (standards, methodologies, best practice compendium, training, etc.) will not focus on the gas sector or at main gas producing companies (Gasprom). That said, some of the oil deposits include some "gas factor" (a share of gas extracted from the well together with oil). Two deposits in the Pechora delta are dominated with gas condensate - these are liquid fractions of the very light oil, also with associated gas, behaving more as oil than as gas. However, while working with oil producing companies that also work with gas (Lukoil, Sakhalin energy, Shell) and while working on pilot projects located at mixed oil/ gas fields the project through demonstration activities will have an indirect effect on gas production as a side benefit. The project objective will be realized through the following 4 components.

- Outcome 1: Enabling policy, legislative and institutional environment is in place for mainstreaming biodiversity conservation considerations in the oil, hydropower and coal sectors
- Outcome 2: "Avoid-reduce-remedy-offset" principle is demonstrated for the oil sector
- Outcome 3: "Avoid-reduce-remedy-offset" principle is demonstrated for the hydropower sector
- Outcome 4: "Avoid-reduce-remedy-offset" principle is demonstrated for the coal sector

64. The first outcome is cross-sectoral in scope and addresses changes needed in the enabling environment for all sectors to support mainstreaming of biodiversity. Outcomes 2, 3 and 4 are sectoral in scope and focus on removing regulatory, knowledge and experiential barriers to mainstreaming in each specific sector. In the baseline scenario the level of technologies/ practices being followed in the sectors are not adequate in terms of minimizing impacts on biodiversity. There are leaders in each sector that drive technological modernization and search for better practices that minimize adverse impacts on biodiversity (primarily due to international investment interests, involvement of international partners in management, requirements of lenders, and such). However, other companies – majority of which are in the local market – are not following suit and adopting these improved practices. The project will, therefore, collaborate with the leading, most advanced companies that currently operate above the "baseline level" to establish higher standards throughout the sectors/ regions and to reduce market and information barriers for specific biodiversity-friendly technologies (for example through requirements for full-cost economic assessments, incremental costs assessment). Each of the sectoral outcomes/ components is designed with a similar structure covering drafting of compendiums, modifications to

regulations and corporate standards, biodiversity impact assessments, demonstration of biodiversity risk mitigation measures, demonstration of biodiversity offsets, reducing barriers to alternative biodiversity-friendly technologies, and scaling up and dissemination of lessons learned.

Outcome 1: Enabling policy, legislative and institutional environment is in place for mainstreaming biodiversity conservation considerations in the oil, hydropower and coal sectors

65. A set of policies will be put in place that help the Russian Federation oil, hydropower and coal production sectors to cost effectively embrace international standards for biodiversity conservation in the development of new energy projects, as well as effectively deal with the restoration of historic practices where practical. This will require government authorities at both the regional and federal levels to clearly define regulatory oversight responsibilities and practices. Further, a landscape/ ecosystem management approach to biodiversity conservation, impact assessments, and project licensing agreements will be developed, with inputs from regulated companies, federal and regional experts, and local stakeholders. (This approach will be piloted in the project's demonstration areas under Outcomes 2, 3 and 4.)

Output 1.1 Capacities to implement international best practices in mainstreaming biodiversity conservation in all three energy sectors are developed

66. Significant work has been done internationally to collaboratively develop project life-cycle ecosystem management approaches to incorporating biodiversity conservation best practices and use of new technologies into especially oil and gas development. There is also work on, and acceptance of, international norms for mining as well as hydroelectric dams. International best management practices and project implementation norms have been adopted and endorsed by each of the three energy sectors' international associations including: International Council on Mining and Metals, International Petroleum Industry Environmental Conservation Association, and International Hydropower Association. Each of these international business associations has developed multiple guidelines for best practices. In addition to these business associations, several collaborative programs have developed a significant amount of information on best practices, impact assessments, biodiversity offset strategies, and new biodiversity technologies. These include: IUCN on Small Hydropower Dams, the Energy and Biodiversity Initiative, The Environmentally Friendly Drilling Program, Business and Biodiversity Offsets Program, International Association for Impact Assessment, and the Ecosystem Management and Research Institute. All of these organizations and/ or collaborative processes have education tools on best management practices, biodiversity conservation guidelines, monitoring programs, and new biodiversity-friendly technologies. These organizations also have educational outreach materials and have demonstrated a willingness to partner on workshops for information transfer.

67. Transfer of these international norms and guidelines will require education of both federal and regional authorities and expert institutes that are responsible for project design, monitoring and enforcement in Russia, as well as of company personnel responsible for environmental management and risk assessment for energy projects. Therefore, under this output, a workshop for each of the energy sectors will be held at the national level in partnership with international business associations for each sector and other relevant program partners. The target audience in this case will be partnering company's environmental managers, federal and regional10 regulatory ministries, expert institutes and relevant NGOs. The goal of each of the workshops is to transfer knowledge of international operational norms, best management practices, new biodiversity-friendly technologies, an ecosystem approach to impact assessment and introduction of the concept of an Ecosystem Sustainability and Biodiversity Conservation Management Plan (ESBCMP) and Implementation Agreement. The initial concept is to have a plenary overview for ½ day for government and company executives to get an overview and to endorse the process. The second ½ day would be to explain in greater detail the international best management practices for company and government managers and technocrats. Then the next 1.5 days would be spent

[10] Regional Ministries will be those from demonstration areas/ regions where pilot activities are to take place.

in specific workshops with policy and technical experts addressing such things as risk assessments, ecosystem assessments, EIS development, etc. The final ½ day would be spent bringing the overview of the process together for the responsible managers. A session on cost-benefit of new technologies would also be a part of the workshops.

68. These 3 workshops held in the early stage of project implementation will be replicated over the project lifetime to ensure consistency. Additional training workshops will also be organized under the project that focus on smaller target audiences and address specific training needs of eco-auditors, risk managers, project designers, EIA experts, and such to develop capacity for integrating biodiversity considerations into their work.

Output 1.2 Government regulations and methodological guidelines that support application of the avoid-reduce-remedy-offset paradigm are adopted

69. At a special meeting of the State Council of Russia (May 2010), the President requested the government to update national environmental policies towards improvement of the ecological efficiency of the economy. This environmental policy development process, endorsed by the President, offers a strong foundation for the GEF project to integrate biodiversity conservation considerations in national environmental policy. Annex H presents some key points from the ongoing high-level policy dialogue within the RF on the issue of reforming national environmental regulations and policy. The explicit emphasis on EIA, incentives to companies for investing in "green" technologies, and charges and fines for environmental damage are particularly noteworthy. Key areas of reform have been identified as: (i) Re-instate the system of state environmental impact assessment, (ii) Make a transition to a system of standards, based on the best available technologies, (iii) Raise charges for negative environmental impact, (iv) Implement economic incentive measures for upgrading production, (v) Increase efficiency of environmental control and monitoring, (vi) Reduce numbers of administrative barriers, and (vii) Eliminate accumulated environmental damage. However, without the GEF project, this national policy reform process will mainly target improved national administrative procedures and increased compensations/ penalties for pollution, waste water discharge and emissions, and promotion of related clean technologies. Adequate emphasis on biodiversity impacts and risks is lacking. This output will address this gap by focusing on specific national-level standards, regulations, and methodologies for biodiversity impacts/ risks with implications for all energy sectors.

70. Policies will be developed and integrated by both the federal and regional regulatory ministries and institutes on the "avoid-reduce-remedy-offset" paradigm for "no net loss" of biodiversity into the process of energy project planning for new projects. Building on the transfer of knowledge under Output 1.1, a team of experts will be convened including government representatives from the primary Ministries implementing the regulatory framework and developing methodological documents; company environmental and regulatory experts; international ecosystem management and biodiversity policy expert; key NGO representatives including representation of Indigenous Peoples' organizations; international policy and technology expert for each sector; and a policy development facilitator that will coordinate across all of the sectors. Existing methodological guidance will be reviewed to identify how it can be modified with avoid-reduce-remedy-offset principles, including, but not limited to the following:

- Methodological Recommendations and Regulations for the Assessment of Investment Projects to be modified with avoid-reduce-remedy-offset principles
- Methodology to be developed for pre-project determination of appropriate restoration of ecosystem services and biodiversity
- National standard "Environmental assessment of strategic planning documents in the energy sector" to be developed (prepared in line with the EC Directive 2001/42/EC "On the assessment of the effects of certain plans and programs on the environment")

- Standardized process/ national methodology for full-cost biodiversity valuation and damage compensation policies will be developed in accordance with international standards and endorsed by MNRE
- Regulation and methodological guidelines for establishing biodiversity agreements between the government and energy companies for ensuring no net loss of biodiversity

71. The draft policies and guidelines will be tested in the demonstration areas (Outcomes 2, 3, 4), the experience will be reviewed, and revised policies and guidelines will eventually be adopted by the federal and regional ministries.

Output 1.3 EIA development responsibilities are fully clarified, and policies and practices are revised to include assessments of biodiversity impact

72. The organization of the Russian Federation government ministries has been in a state of flux since the break up of the Soviet Union. Responsibilities have been moved among ministries in attempts to streamline regulatory oversight. This has caused confusion, loss of expertise, competition among ministries and lack of coordination as these changes have occurred. In addition, many new responsibilities have been delegated to the regional authorities, at times without the associated building of capacities to carry out these responsibilities. A review of current responsibility for the development of EIAs for each of the energy sectors among federal ministries and linkages with regional authorities will be developed. In cooperation with the Ministry of Natural Resources and Ecology, responsibilities for EIA development and practices will be clarified, tested through pilot projects and adopted by the Ministry of Natural Resources and Ecology and by the partnering companies in the project's demonstration areas.

73. In addition to clarifying EIA responsibilities, EIA policies and practices will be amended to include an ecosystem and biodiversity impact assessment process, which will include an evaluation of the cost of biodiversity loss and mechanisms to "avoid-reduce-remedy-offset" impacts from energy sector operations on biodiversity. This is in line with the environmental policy development process mentioned above that was endorsed by the President in May 2010. The Russian Federation has a history of ecosystem classification and in many regions where there are protected areas there is good background information on biodiversity. However, there is a need to link this type of information with an ecosystem and biodiversity impact assessment process and utilize this as the basis for biodiversity conservation in implementation of energy projects. The new EIA process will embrace international standards for conducting EIA as described by the International Association of Impact Assessments. (See Annex F for more details on linking an ecosystem assessment approach to biodiversity impact assessments for preparation of an environmental impact statement and development of an ecosystem sustainability and biodiversity conservation agreement.)

74. Integration of an ecosystem and biodiversity impact assessment process within EIAs will be led by a team of experts including government ecological, GIS, and biodiversity experts from implementing Ministries; environmental/ ecological experts from companies participating in the pilots; international ecosystem management and biodiversity experts; and experts from international and Russian NGOs with experience and expertise in relevant areas. The team's role will be to transfer, adapt and develop the capacity for an ecosystem-based biodiversity impact assessment and management system. Methodology guidelines and draft corporate standards/ industry standards for biodiversity-sensitive Environmental Impact Assessment in the energy sector, with due account of the requirements of international credit institutions and international industry associations, will be developed.

Output 1.4 GIS based methodology and system for assessment and mapping of ecosystem sensitivity to industrial investments is available for state authorities, business and public in pilot regions

75. To improve their environmental performance, industries need to implement the "avoid-reduce-remedy-offset" approach to all projects. Protection of biodiversity, especially of most significant hot-spots, is most effective when they are identified and avoided by project design or human activities are limited or specifically regulated for the purpose of hot-spot protection and sustainable use. To allow this, it is very important for projects to know at the appraisal stage, before final project location choice is made, all "no-go" and other zones that are restricted for development. This information needs to be presented and available for companies and state authorities in easy to access and visual form which allow both rapid review and if necessary more rigorous and detailed analysis.

76. The project will therefore develop, in collaboration with UNEP-WCMC, state authorities, NGOs and experts, a regional GIS to include key areas important for conservation of biodiversity. This will include: (i) all range of officially designated protected areas (including internationally designated such as Ramsar and World Heritage sites and local) and planned protected areas; (ii) ecoregions and biodiversity hot-spots recognized by international NGOs and expert community; (iii) areas of special importance (key bird areas, old-growth forests of special conservation value, habitats of endangered species, especially species listed in IUCN Red List etc.); (iv) restricted areas (water protection zones, protective forests, protective fishery zones, important spawning grounds; and (v) areas of traditional land use of indigenous and local communities. These GIS maps will be integrated into project planning and design as well as into EIA. The GIS system will be compatible with the Integrated Biodiversity Assessment Tool for Business (IBAT) – which is an international tool designed to facilitate access to accurate and up-to-date biodiversity information to support critical business decisions[11] – and thus will also contribute to the global data base and decision making system.

77. The GIS system will be complemented with regional requirements for conservation of particular important ecosystems articulated in a Regional Biodiversity Management Plan (for Sakhalin Oblast, NAO, Southern Yakutia and Northern Caspian). In partnership with the relevant Regional Administrations support will be provided for better monitoring, protection and reproduction of terrestrial fauna; establishment of monitoring and bio-technical measures for rare flora and fauna species; technical facilities and equipment for protected areas; creation of field monitoring units for biodiversity monitoring in the areas of energy infrastructure development.

Output 1.5 Statistical, corporate and market reporting guidelines for companies in each of the energy sectors will be amended to incorporate biodiversity conservation investments.

78. Best management practices for biodiversity conservation and the concepts of "avoid-reduce-remedy-offset" so that there is no net loss of biodiversity will be demonstrated through the pilot projects for both planned and active sites for each of the energy sectors. While there are costs associated with undertaking these practices, there are also benefits to the companies, for example gaining access to working capital in the future may depend on a company's ability to mitigate biodiversity risks. In order to recognize companies that are taking on biodiversity conservation practices in their operations, the project will institute a system for public disclosure of companies' efforts on biodiversity conservation. Working with partner companies and business associations, a standard statistical reporting process will be developed and adopted by companies licensed to exploit federally owned energy resources. The idea of such reporting has been accepted in RF, but the focus needs to be on practical ways of realizing such reporting by focusing on issues such as what the procedure will be, and who will be the competent government authority. Reporting processes will be tailored to each energy sector and will reflect both the cost and effectiveness of biodiversity conservation practices. International experience on the issue of corporate sustainability reporting will be reviewed, such as the work of the Global Reporting Initiative, the UN Global Compact and its local network in RF, and others, and adapted to include reporting on

[11] The tool is the result of a ground-breaking conservation partnership among BirdLife International, Conservation International, International Union for Conservation of Nature and United Nations Environment Programme World Conservation Monitoring Centre.

biodiversity conservation. The project will (i) review existing guidelines for biodiversity reporting and biodiversity indices, (ii) propose viable indices, and (iii) promote reporting on those indices through corporate reporting and business associations such as the Russian Union of Industrialists and Entrepreneurs. Partner companies in the project and others that are embracing international environmental standards will thus be able to gain full recognition for their efforts and investments in biodiversity conservation.

Outcome 2: "Avoid-reduce-remedy-offset" principle is demonstrated for the oil sector

Output 2.1 Compendium of biodiversity solutions for the oil sector

79. The compendium will address all possible biodiversity threats from all types of oil operations for all of the ecosystems that have the potential to be impacted from each of the oil districts in Russia. This compendium will offer case-tailored best management practices for biodiversity conservation solutions as well as demonstrate the reduced impacts from new technologies. Cost effectiveness and business assurances will be analyzed and demonstrated via the compendium. Specific examples from international experience will be described. Actual field deployment of specific new technologies will be based on current economic conditions and willingness of companies to spend capital.

80. The compendium will be developed noting the international standards for biodiversity conservation developed by the Energy and Biodiversity Initiative. The compendium will describe and embrace the concept of "no net loss" of biodiversity and the "avoid-reduce-remedy-offset" paradigm. The compendium will describe and endorse an ecosystem approach to impact assessment and development of an ecosystem management plans for the life cycle of proposed projects. The document will describe new technology efficiencies and reduction of impacts on biodiversity. A cost-benefit analysis of biodiversity conservation practices and technologies will be included in the compendium. (See Annex G for more details on the proposed compendiums.)

81. A first draft of the compendium will be developed in the second year of the project. It will be used to inform the pilot projects as they are developed and implemented. A final draft will be developed in the last year of the project and will include lessons learned and used as a mechanism for dissemination of new standards for the industry. The oil sector biodiversity compendium and project results will be published on the web and publicized. Oil sector regulations adapted by the regional administrations will also be published on the web with references to the biodiversity compendium.

Output 2.2 Sector-specific regulations and corporate standards for the oil sector

82. During project development the following specific modifications to corporate oil sector standards and government regulations have been identified. These will be implemented with key partners, and associated capacity building and training will be provided to facilitate internalization of the modifications.

83. In partnership with Lukoil and based on its experience in the North Caspian, the project will develop corporate standards on an improved system for value/ cost assessment for bioresources and ecosystem services in environmental programming and associated compensational mechanisms applied by oil companies.

84. The project will work with the regional administration and Lukoil to put in place a regulatory framework for assigning special protection status to the Zhemshuzhny Island, which is a Caspian seal rockery in the proximity of oil deposits in the North-Western Caspian.

85. Finally, the project will collaborate with Shell and Wetlands International on application of the prototype Early Impact Identification and Assessment Tool (EIIAT) to oil sector EIAs and put in place the necessary regulations for EIIAT application.

Output 2.3 Biodiversity impact assessment and monitoring

86. An expert and stakeholder workshop will be held at the beginning of the project to develop the full detailed scope for assessing and monitoring impacts on biodiversity in the pilot oil fields (Kumzhinskoye and Korovinskoye deposits in NAO, Flanovskogo and Rakushechnoe in North Caspian, and Piltun-Asokhsoe and Lunskoe oil & gas fields in north-eastern Sakhalin). Currently available information will be collected and organized by regional experts; field studies will be conducted to collect any data not currently available for the assessment and planning process. The analysis will develop an understanding of the historic ecosystem function and biodiversity and the level and type of impacts from energy and other anthropomorphic disturbances. A realistic desired future ecosystem condition will be developed based on best management practices implementation and potential remediation of past impacts.

87. A programme for on-site environmental monitoring for the key aquatic species will be further developed to assess impact of exploration and exploitation of offshore oil&gas deposits on the ecosystems and aquatic bioresources. For instance, in Sakhalin, monitoring of biodiversity impacts will focus on the Steller's Sea eagle, as well as for other endangered avifauna (IUCN Red List, the Red Book of Russia and its administrative regions), the Sakhalin taimen population, and grey whales inhabiting the Sea of Okhotsk.

Output 2.4 Biodiversity risk mitigation measures demonstrated in oil fields in NAO, Sakhalin and North Caspian

88. Under this output, biodiversity risk mitigation measures will be identified and implemented at several oil fields as indicated in the table below. A consultative process will be followed in developing the implementation plan for mitigation measures involving partner companies, international and regional experts, regulatory authorities, and other regional stakeholders. In addition, particular note will be taken to ensure participation of local community/ indigenous peoples' representatives at the pilot site level.

89. In collaboration with SN Invest, the following types of biodiversity risk mitigation measures will be demonstrated in the Kumzhinskoye and Korovinskoye deposits located in NAO: (i) Redesign (adjustments to the original planning) of hydrotechnical facilities; (ii) Liquidation of wells; (iii) Technical and biological recultivation of degraded areas of land, recovery of accumulated wastes, clean up of the territory from garbage and scrap metals, etc; (iv) Environmental and geological monitoring for the exploration of Kumzhinskoye and Korovinskoye deposits; (v) Development of relevant sections of project documentation; (vi) Collection and analysis of samples for radionuclide content in hydro carbonates.

90. In collaboration with Lukoil, the following types of biodiversity risk mitigation measures will be demonstrated in the Flanovskogo and Rakushechnoe oil & gas fields that are under development in north-western Caspian: (i) During preparation and exploitation of drilling planes the "zero discharge" practice will be in place, meaning that the wastes are collected in sealed containers and removed to the shore for utilization, and other negative impact is minimized through applying environmentally safe water intake methods, using secondary coolant circuit, cluster field development, as well as engineering solutions that reduce emissions into the atmosphere and noise; (ii) Viability of establishment of special construction around platforms allowing anchorage for aquatic life and spawning for the Round goby will be assessed; (iii) Emergency oil spills preparedness and response system will be improved, both for summer and winter (ice covered sea) period; (iv) Continue damage compensation practice for sturgeon population through hatchery support.

91. In collaboration with Shell, Alltech, «Arctikmorneftegasrazvedka» and Arcticneft , the following types of biodiversity risk mitigation measures will be demonstrated in the Kumzhinskoe and Korovinskoe gas-condensate deposits that are at the stage of development in the Pechora river delta (NAO region) and in the Peschanoozerskoe oil & gas field that are currently active in the eastern part of Kolguev Island (NAO region): (i) Reduction in number of wells through cluster field development, controlled-angle drilling from active and sealed wells, use of seismic exploration methods not associated with explosions; (ii) Use of second bores in the existing wells rather than boring of new wells; (iii) Broader application of

the technologies associated with water encroachment of bed, hydrofracturing and other methods to increase productivity of the existing wells; (iv) Strict observance of the zero discharge principle in any water area (sea or freshwater); (v) Use of underwater and terrestrial pipeline overpasses through the water areas; (vi) Broader use of used well sealing practices; (vii) Reclamation of drilling sites and coffins; (viii) Reclamation of sieve residue deposits, biodestruction of oil containing residues.

92. In collaboration with Sakhalin Energy Investment Company Ltd., the following types of biodiversity risk mitigation measures will be demonstrated in the Piltun-Asokhsoe and Lunskoe oil & gas fields in north-eastern Sakhalin: Pilot Field 1 -- (i) During construction and use of offshore drilling platforms and installation of sub sea pipelines, it is planned to undertake certain measures to control and minimise noise pollution; (ii) Timeframes for seismic exploration will be corrected so that those take place before the grey whales enter the feeding areas in the proximity of exploration sites; (iii) Activities to prevent emergent cases of drill mud dumping in the Sea of Okhotsk will be continued; (iv) Emergency oil spills response system will be improved, both for summer and winter (ice covered sea) period; Pilot Field 2 – (i) In the process of pipeline construction and other activities associated of massive ground replacement the measures will be put in place to minimize negative impact on rivers and lagoons inhabited by fish - a primary sources for food for the Steller's Sea eagle; (ii) An awareness programme for the general public and the company staff will be developed to emphasize the importance of conservation measures for the Steller's Sea eagle, to distribute information on how to behave when close to the bird's nest, of the species status which makes it illegal to kill it, and on measures to protect birds from being injured by power lines; Pilot Field 3 – (i) Install pipe reducers, permanent and temporary pathways through rivers in winter, in order to minimize the discharge of the sandy-argillaceous particles into water; (ii) Replacement of ballast water in the open ocean before they are discharged in the coastal waters of Sakhalin, in order to prevent invasion of alien species; (iii) Continue creation of a system of preparedness and response to the emergency oil spills from the on-shore facilities and along the pipelines, in order to prevent release of petroleum products into rivers; (iv) Awareness programme for the general public and the company staff will be developed to emphasize the importance of conservation measures for the Sakhalin taimen, particularly emphasizing the promotion of «Catch and release» ideas for tourist agencies.

Output 2.5 Demonstration of a trilateral agreement between local communities/ indigenous peoples, regulatory authorities and energy companies

93. During project development, one of the key challenges identified for the oil sector is the inter-relationship between oil sector operations, impacts on biodiversity, and livelihoods of indigenous peoples and local communities. Oil operations impact biodiversity on which indigenous people depend. For instance, the abundant and productive salmon populations of Sakhalin are also of great importance to the local economy and for the livelihoods of many people, including indigenous people in the north of the island. Fishing is widely practiced and is of great importance to many islanders, particularly the indigenous people of the north-east, as it provides a significant source of food. The energy company Sakhalin Energy has been in the forefront of efforts to address this issue. The project will work with Sakhalin Energy to develop a trilateral dialog and agreement between local communities/ indigenous peoples, regional government and energy companies on win-win solutions that optimize benefits for all parties, safeguard biodiversity interests, and reduce the risk of conflict. This will require identifying social and economic impacts of energy operations on indigenous communities in the Sakhalin demonstration area, identifying measures to address problems, and developing capacities to implement solutions. This could be tied in with the CSR programs of the energy company.

Output 2.6 Scaling up and dissemination of lessons learned

94. Lessons learned from the implementation of biodiversity risk mitigation measures at oil fields in NAO, Sakhalin and the North Caspian will be analyzed and documented for further dissemination. The

project will facilitate exchange of experience and best practices between the Russian oil companies with international oil/ petroleum associations to facilitate harmonization of environmental standards, reporting, GRI guidelines, and such. The project will also facilitate a dialogue among Russian oil producers and eventual establishment of national associations/ business boards to review and promote biodiversity-friendly practices in the oil industry. An end-of-project national workshop and review will be conducted. Lessons will be integrated into the oil sector biodiversity compendium (Output 2.1) and project results will be published on the web and publicized. Oil sector regulations adapted by the regional administrations and corporate standards (Output 2.2) will also be published on the web with references to the biodiversity compendium.

95. In addition, once the project's interventions on legal reform, institutional strengthening, capacity development, and on-the-ground demonstrations are well underway, attention will be given to how the project approach and lessons can be replicated to other existing and proposed oil sector projects. Potential sites for replication will be identified and a strategy for engaging stakeholders for these new sites will be developed. By project-end, a funded plan for replication in these areas will be approved by the government and industry representatives. Personnel trained under this project will serve as key resource persons for the replication plan, and information materials and guidebooks will be made readily available.

Outcome 3: "Avoid-reduce-remedy-offset" principle is demonstrated for the hydropower sector

Output 3.1 Compendium of biodiversity solutions for the hydropower sector

96. The compendium will address possible biodiversity threats from all types of hydropower development and operations for all of the types of ecosystems that have the potential to be impacted from dams in Russia. This compendium will offer case-tailored best management practices for biodiversity conservation solutions as well as demonstrate the reduced impacts from new technologies and approaches. Cost effectiveness and business assurances will be analyzed and demonstrated via the compendium. Specific examples from international experience will be described. Close collaboration will be maintained with the ongoing initiative of a coalition of Russian Environmental NGOs and RusHydro that has established a web-based thematic community of practitioners on sustainable hydropower development in the RF (www.russiandams.ru) and aims to produce a "White Paper: Dams and Development". In developing the compendium under this output, close collaboration will be maintained with this initiative to build on their work and add value in terms of best management practices in biodiversity-friendly hydropower development.

97. The compendium will be developed noting the international standards for biodiversity conservation developed by the International Hydroelectric Association and standards developed by Coface[12]. The compendium will describe and embrace the concept of "no net loss" of biodiversity through the mechanisms of "avoid-reduce-remedy" project impacts. The compendium will describe and endorse an ecosystem approach to impact assessment and development of an ecosystem management plans for the life cycle of proposed projects. The document will describe new technology efficiencies and reduction of impacts on biodiversity. A cost-benefit analysis of biodiversity conservation practices and technologies will be included in the compendium. The hydroelectric biodiversity compendium will include the valuation of ecosystem services lost due to dam construction and mechanisms for remuneration of lost values to affected stakeholders. (See Annex G for more details on the proposed compendiums.)

[12] Coface (http://www.coface.com/CofacePortal/COM_en_EN/pages/home/Who_we_are) takes the perspective of reducing project risks for private sector investments by recognizing that environmental risks are also key to a successful project. Coface's environmental guidelines on hydroelectric power stations and large dams are aimed at clarifying the criteria used in the environmental review of major projects, identifying the main impact factors of a project on the environment and, for each of these factors, define three categories of criteria: reference criteria, target criteria and best practice criteria.

98. A first draft of the compendium will be developed in the second year of the project. It will be used to inform the pilot projects as they are developed and implemented. A final draft will be developed in the last year of the project and will include lessons learned and used as a mechanism for dissemination of new standards for the industry.

Output 3.2 Sector-specific regulations and corporate standards for hydropower sector

99. Hydropower Sector Regulations: The project will support the following hydropower sector-specific regulatory changes for planning, construction and operation of hydropower plants (HPPs): (i) Discussion on and development of guidelines for the assessment of economic and ecological efficiency of HPPs taking into account existing business/operating environment and costs to cover environmental impacts, (ii) Development of a model basin agreement to reconcile interests and recover losses of various stakeholders involved in the planning, design and operating of hydropower infrastructure; (iii) Recommendations for the system of norms and regulations on the distribution of revenues and losses emerging during construction or reconstruction of hydropower infrastructure; (iv) Development and piloting of an environmental monitoring programme for regulated river basins of Russia (pilot at Timpton basin, Kankunskaya site); (v) Development of an ecological regulation on maximum allowable transformation of water runoff for the preservation of healthy conditions for reproduction of freshwater biological resources and ecosystems. To facilitate internalization of the regulations, the project will support related training and capacity building efforts for public sector stakeholders.

100. Corporate Standards: In collaboration with Rushydro, this output will develop recommendations for the utilization of best environmental protection technologies in the field of hydro engineering, drawing on international experience, for adoption at the regional level (Yakutia). Recommendations will be developed as follows: (i) Amendments to existing corporate technical standards for hydropower stations on technological solutions to reduce pressures on environment and utilize ecologically friendly equipment; and (ii) Amendments to corporate technical standards under development on environmental monitoring during construction and maintenance of the hydropower stations; harmonization of both standards. To facilitate internalization of these recommendations, the project will collaborate with Rushydro to enhance its professional training programmes to better address issues of sustainable hydropower development that minimizes risks to biodiversity.

Output 3.3 Biodiversity impact assessments

101. The Kankunskaya HPP is being planned on the Timpton River (right tributary of the Aldan River, Aldansky District); construction works are planned for the period 2011-2019. The new methodology for EIA (linking an ecosystem assessment approach to biodiversity impact assessments for preparation of an environmental impact statement and development of an ecosystem sustainability and biodiversity conservation agreement) developed under Outcome 1 (Output 1.3) will be tested in the Kankunskaya HPP, in collaboration with Rushydro that will provide cofinancing for developing the improved EIA at the project justification and project design phases.

102. An expert and stakeholder workshop will be held at the beginning of the project to develop the full detailed scope of issues which need to be assessed. An ecosystem and biodiversity assessment will be undertaken in collaboration with Rushydro, regional experts, regulatory authorities, international biodiversity experts and national expert institutions. Currently available information will be collected and organized by regional experts; field studies will be conducted to collect any data not currently available for the assessment and planning process. The analysis will develop an understanding of the historic ecosystem function and biodiversity and the level and type of impacts from hydropower development and other anthropomorphic disturbances. A realistic desired future ecosystem condition will be developed and best management practices will be identified for implementation.

Output 3.4 Baseline sector practices and technologies modified to reduce biodiversity impacts at design phase of the Kankunskaya Large Hydropower Plant (LHPP)

103. This output will focus on integrating the avoid-reduce-remedy-offset paradigm in the design of the proposed Kankunskaya HPP, through collaboration and cofinancing from Rushydro. Biodiversity-friendly measures are likely to include activities such as: strict regulation of construction works, including necessary clarifications for management and staff of construction companies on the priority accorded to avoiding damage to unique natural areas; reclamation of areas destroyed during construction activities; preparation of the site (the bottom of future dam reservoir) with clear cutting of forests to avoid future problems with water quality in the reservoir as a result of forest residue decay; bird protection measures along power lines; enhanced support to protected areas in the Timpton River basin, namely "Khatymi" and "Nimnir" zakazniks, so that affected animal and bird species have a reliable refuge, which can help restore population numbers.

Output 3.5 Biodiversity offset demonstrated for endangered Siberian Grouse affected by hydropower development

104. Taiga ecosystems in the Timpton River basin will be unavoidably destroyed by HPP, and it is impossible to lessen the impact. Compensation measures, therefore, need to be put in place to protect the endangered Siberian grouse which will suffer from habitat loss caused directly (from the reservoir) and indirectly (from associated infrastructure development related to HPPs). The project will collaborate with the "Orto-Doidu" Zoo on organization of a hatchery for the Siberian grouse (*Dendragapus falcipennis*) for further release of captive birds into the wild (detailed description of the offset «Siberian grouse hatchery» is in Annex B). The "Orto-Doidu" Zoo has been identified as a partner based on a capacity assessment showing existing experience with Siberian Grouse captive propagation, availability of skilled experts, as well as solid understanding of the actions required for the restoration of the species.

Output 3.6 Reducing barriers for the promotion of selected biodiversity-friendly technologies (small hydro)

105. Small hydropower plants (SHPP) are the most efficient solution to the energy problems of regions that belong to the decentralized energy-supply zones (which constitute 70% of Russia's territory). Power supply to remote and energy-deficient regions entails significant costs. In such regions it would be far more cost-effective to develop SHPP capacities, the economic potential of which in Russia is above that of such renewable sources as wind, solar and biomass put together. Besides, construction of small hydropower facilities costs little and breaks even fast. SHPPs are also the most environmentally friendly means of power production as they help preserve natural landscapes not only during the operational phase but also during the construction stage. They have no negative impact on the lifestyles of people, wildlife and local microclimatic conditions.

106. The economic potential of small HPPs (SHPP) in Russia totals 200 billion kWh per year. However, only 1-2 % of that is used. Among the factors that slow down the development of small hydro generation in Russia are the low awareness of potential users about the advantages of small hydrogenation facilities; insufficient knowledge about the hydrological regimes and flows of small rivers; low quality of current methods, recommendations and construction norms and regulations, which leads to serious mistakes in calculations; underdeveloped methods of evaluation and forecast of possible environmental and economic impacts.

107. Small hydropower development in the Sakha (Yakutia) Republic is a promising alternative for reducing damage to biodiversity from the hydropower sector (as compared to large hydropower projects which seem to be the thrust for hydropower development in Yakutia). This output will focus on reducing barriers to adoption of SHPP. An assessment of the technological and economic potential for small hydropower in the Republic was conducted in 2004 by the Institute for the Ministry of Communal

Housing of the Sakha Republic. This study, however, needs to be updated. While there is no a separate dedicated programme in the Sakha (Yakutia) Republic on hydropower development, there is a programme titled "Optimization of local energy sources in the Sakha (Yakutia) in 2008-2015" that includes a component on energy saving and introduction of renewable energy sources. This programme has been accepted (but not yet approved) and is being discussed by the Government of the Republic of Sakha (Yakutia) and will also undergo subsequent approval at the federal level.

108. To support this process, the project will undertake an analysis of small hydropower potential in Sakha (Yakutia) Republic and will partner with JSC Sakha Energy (Yakutskenergo) to pilot SHPPs in Sasyr village (Momskiy district) and Dulgalah village (Verhoyanksiy district). GEF resources will be used for assessing hydropower potential in Yakutia, supporting the development of business plans for the 2 SHPP pilots, as well as providing professional training and consultations on technologies. JSC Sakha Energy will provide cofinancing for implementation of the SHPPs.

Output 3.7 Scaling up and dissemination of lessons learned

109. Lessons learned from the LHPP pilot, offset program, and SHPP pilots will be analyzed and documented for further dissemination. An end-of-project national workshop and review will be conducted. Lessons will be integrated into the hydropower sector biodiversity compendium (Output 3.1) and project results will be published on the web and publicized. Hydropower sector regulations adapted by the regional administrations (Output 3.2) will also be published on the web with references to the biodiversity compendium.

110. Close collaboration will be maintained with the ongoing initiative of a coalition of Russian Environmental NGOs, UNDP and RusHydro that has established a web-based thematic community of practitioners on sustainable hydropower development in the RF (www.russiandams.ru)[13]. This ongoing network will be tapped to collate, analyze and disseminate lessons on sustainable hydropower development. Under this output support will be provided for the continued operation of the expert thematic community through professional moderation, annual meetings of the community (expert forum), and preparation of specific analytical papers on the impact of dams/ hydropower infrastructure on ecosystems and ecosystem services, biological resources, as well as social and economic sectors. Support will also be provided to this online thematic community for the development of the paper "White book: Dams and development" which is a key process for reconciling visions and interests of civil society organizations and JSC Rushydro regarding social and environmental dimensions of hydropower sector development in Russia. As part of this process, new methodological grounds will be defined for decision-making in the field of hydropower development and construction. Beyond the development of the White Paper, the online thematic community platform will facilitate broader communication, information exchange, expert discussions and dissemination of information within and between hydropower projects.

111. In addition, once the project's interventions on legal reform, institutional strengthening, capacity development, and on-the-ground demonstrations are well underway, attention will be given to how the project approach and lessons can be replicated to other existing and proposed hydropower projects. Potential sites for replication will be identified and a strategy for engaging stakeholders for these new sites will be developed. By project-end, a funded plan for replication in these areas will be approved by the government and industry representatives. Personnel trained under this project will serve as key resource persons for the replication plan, and information materials and guidebooks will be made readily available.

[13] The online thematic community (called "White Book. Dams and Development") is a professional, moderated, expert forum established under a UN-sponsored internet space - Solution Exchange. Solution Exchange is a new web-based tool supported by UNDP that offers a platform where development professionals with similar interests can connect and share knowledge and experience on a common objective. It was established in 2009 by a coalition of Russian environmental NGOs and JSC Rushydro with UNDP.

Outcome 4: "Avoid-reduce-remedy-offset" principle is demonstrated for the coal production sector

Output 4.1 Compendium of biodiversity solutions for the coal sector

112. The compendium will address all possible biodiversity threats from all types of coal producing operations for all of the ecosystems that have the potential to be impacted from coal industry in Russia. This compendium will offer case-tailored best management practices for biodiversity conservation solutions as well as highlight the reduced impacts from new technologies. Cost effectiveness and business assurances will be analyzed and demonstrated via the compendium. Specific examples from international experience will be described.

113. The compendium will be developed noting the international standards for biodiversity conservation developed by the International Council on Mining and Metals. The compendium will describe and embrace the concept of "no net loss" of biodiversity through the mechanisms of "avoid-reduce-remedy" of project impacts. The compendium will describe and endorse an ecosystem approach to impact assessment and development of an ecosystem management plans for the life cycle of proposed projects. The document will describe new technology efficiencies and reduction of impacts on biodiversity. A cost-benefit analysis of biodiversity conservation practices and technologies will be included in the compendium. (See Annex G for more details on the proposed compendiums.) A first draft of the compendium will be developed in the second year of the project. It will be used to inform the pilot projects as they are developed and implemented. A final draft will be developed in the last year of the project and will include lessons learned from the pilots.

Output 4.2 Sector-specific regulations and corporate standards for coal sector

114. Coal Sector Regulations: During project development, the need for a number of coal-sector specific regulations and methodological guidelines was identified. Under this output, development and approval by the regional administration of Khakassia and Kemerovo Oblasts of the following regulations and guidelines will be supported: (i) methodology for cadastral division of the pilot coal-mining regions (Sayany-Khakasia and South and South-East of Kemerovo Region) into production and territorial complexes depending on conditions of and requirements for biodiversity conservation; (ii) mapping of coal mining regions to define bio-entities in need of biodiversity conservation; (iii) methodology for economic assessment of biotic degradation and loss of biodiversity for the regions as well as method to identify countervailing payments by coal mining companies; (iv) assessment of geo-technologies used in coal-mining in view of biodiversity conservation in surrounding biotypes; (v) principles for self-restoration of ecosystems by coal mining companies in the post-operating period until initial ecological conditions are fully achieved and including the said principles into licensing conditions; (vi) regulatory and procedural documents for coal-mining enterprises by environment components (water, air, land resources) and a temporary instructions on how to arrange and conduct an ecological audit as to biodiversity conservation in the coal mining industry, as well as reporting and information disclosure rules for the securities market and listing; (vii) develop and introduce the set of documents on best available technologies[14] compatible with the Russian Federation national standards.

115. Corporate Standards: The project will collaborate with SUEK to develop improved coal sector corporate standards that reflect the avoid-reduce-remedy-offset paradigm. For instance, during the

[14] a. Efficient management of resources: Bituminous and lignite coal /Best available technologies. Prevention of pollution while handling, storing and transporting; b. Efficient management of resources: Bituminous and lignite coal /Best available technologies. Firing; c. Efficient management of resources: Bituminous and lignite coal /Best available technologies. Prevention of pollution/dumping in the firing process; d. Efficient management of resources: Bituminous and lignite coal /Best available technologies. Ashes and slag waste management; e. Efficient management of resources: Natural Resources/Biodiversity/Best available technologies./Waste in coal mining industry. Restoration of disturbed land; f. Efficient management of resources: Natural Resources/Biodiversity/Best available technologies. Botanical/Floristic garden.

exploitation of new sections of the Izykhsky and Vostochno-Beisky coal strip mines the plan is to place spoil banks inside the coal opencast rather than on the surface to reduce land-take, associated ecosystem destruction, and land withdrawal charges for SUEK. Another area where improved corporate standards can be established is for calculation of permissible amounts of polluted mine water discharge to surface water bodies to ensure conservation of natural biodiversity in local ecosystems.

116. To facilitate internalization of the corporate standards and regulations, the project will support related training and capacity building efforts targeted at private and public sector stakeholders.

Output 4.3 Biodiversity impact assessments

117. In partnership with SUEK, the project will undertake an assessment of the effectiveness of the current quarry waste water treatment facilities and the negative impact of discharge on biodiversity in SUEK's coal mining operations in Khakassia (Izykhsky, Chernogorsky, Vostochno-Beisky coal strip mines, and Khakasskaya coal mine). Based on international experience, an ecosystem and biodiversity assessment will be undertaken at each of the sites in collaboration with partner companies, regional experts and regulatory authorities, and regional stakeholders. The analysis will develop an understanding of the historic ecosystem function and biodiversity and the level and type of impacts from coal production and other anthropomorphic disturbances. Hydrogeological, hydrochemical and biological research will be undertaken as a basis for identifying measures for further optimization of the technology for collection and treatment of quarry waste water before discharge into artificial ponds.

118. In Kemerovo Oblast, the project will partner with SUEK to pilot biodiversity impact assessment in the "Krasnoyarskaya" mine located in the central part of the Kuznetskaya depression. This will include biodiversity risk and damage assessment for the water areas located in the vicinity of waste water discharge objects, and environmental and economic assessment of the effectiveness of the current waste water treatment facilities.

119. Under this output, a program for socio-ecological monitoring of biodiversity impacts from coal infrastructure on the Western and Eastern Sayany will also be established, in collaboration with the Administration of the Askizsky Rayon. The rayon is located on the borderline of the steppe and the forest-steppe zones at the Sayany foothills, and its territory constitutes a buffer zone between the Western and Eastern Sayany. The objective is to monitor the impact of coal sector infrastructure on the Western and Eastern Sayany mountain complex so as to ensure that biodiversity conservation measures based on the "avoid-reduce-remedy" principle are integrated in coal mining activities. This will include mapping and zoning by geodynamic factors. The rayon borders on the geodynamically active area of Kuzbass where major coal-mining enterprises operate. Social monitoring will also be critical so as to take into account the interests of the indigenous population of Khakassia that depend on sustainable use of biodiversity in turn preserving their natural, cultural and historical heritage.

Output 4.4 Baseline sector practices and technologies modified to reduce biodiversity impacts at recultivation phase

120. The project will propose improvements to current recultivation technologies and implement these in partnership with the Siberian Coal Energy Company (SUEK) in their mines in Khakassia Oblast. The project will build on the trend to replace technical reclamation with biological recovery (spontaneous regeneration of vegetation cover). Companies tend to opt for natural regeneration that is relatively low-cost but slow. The pilot project will test alternatives that can replace this with more intensive biological recultivation based on scientific data that yields faster results. New recultivation methods will be tested such as forest/ meadow plantation/ seeding with a scientifically-proven selection of species composition to be as close to the natural conditions as possible. The project will conduct detailed costing of the advanced recultivation techniques and co-finance incremental costs of recultivation at the SUEK demonstration sites on-top of the conventional methods (natural revegetation).

Output 4.5 Biodiversity offset demonstrated through establishment of a regional zakaznik

121. The steppe ecosystems in the central part of the Kuznetskaya depression have been long disturbed by human-induced activities associated with coal mining. It is impossible to re-determine the historical impact zone and ensure equivalent conservation and/ or rehabilitation of the steppe ecosystems. A compensational mechanism is therefore being proposed to conserve the remaining steppe habitats. The Karakanskaya Ridge is selected as one of the last remaining representative areas where a certain number of steppe and rocky steppe species still remain as recommended by specialists working in the Kuzbass botanical garden. As a mechanism for damage compensation through an offset, the project will prepare justification and design documents for the establishment of a regional botanical zakaznik at the Karakansky ridge to protect unique rocky steppe ecosystems. (Annex B provides more details on the offset.)

Output 4.6 Reducing barriers for the promotion of selected biodiversity-friendly technologies (water treatment technologies)

122. This output will focus on demonstrating improved water treatment technology (over baseline technologies currently in use) at the Krasnoyarskaya mine. With SUEK-Kuzbass cofinancing, a new water treatment method (jointly with "Enviro Chemie GmbH", Germany) will be tested at the Krasnoyarskaya mine. GEF support will be targeted to assessing, documenting, and promoting the ecological effectiveness and economic efficiency of the new method. The focus will be on ecological and economic evaluation of the effectiveness of the treatment method as well as an evaluation of surface-waters at locations where cleaned mine waters spew, evaluation of risks and of regional biodiversity damage.

Output 4.7 Scaling up and dissemination of lessons learned

123. Lessons learned through the pilots will be analyzed and disseminated. An end-of-project national workshop and review will be held. The coal sector biodiversity compendium and project results will be published on the web and publicized. Coal sector regulations adapted by the regional administrations will also be published on the web with references to the biodiversity compendium.

124. In addition, once the project's interventions on legal reform, institutional strengthening, capacity development, and on-the-ground demonstrations are well underway, attention will be given to how the project approach and lessons can be replicated to other existing and proposed coal projects. Potential sites for replication will be identified and a strategy for engaging stakeholders for these new sites will be developed. By project-end, a funded plan for replication in these areas will be approved by the government and industry representatives. Personnel trained under this project will serve as key resource persons for the replication plan, and information materials and guidebooks will be made readily available.

2.4 Key Indicators, Risks and Assumptions

125. The indicators and their baseline and target values are presented in the Project's Results Framework (Section 3). Based on discussions during project preparation, the following risks were identified. Means to mitigate these risks were also discussed and integrated into the project strategy.

Table 3. Project Risks

Risk	Level	Mitigation
Key government actors/ institutions are not fully engaged and committed to the project strategy and do not internalize and support replication of the project strategy	L	This project is one of the responses to the Presidential Order 889 dated 4 June 2008 "On measures to increase energy and environmental effectiveness of Russian economy". It is based on the recognition that of all environmental aspects in the energy sector, biodiversity has been least considered so far, thus it is "the most demanded" type of work. In line with this, the MNRE places an exceptionally high significance to the project, and is committed to

Risk	Level	Mitigation
		ensure maximum success to all planned initiatives, at policy and at site demonstration levels. A high level Steering Committee was formed at the PPG stage to ensure project acceptance by all branches of power at all levels.
Partner companies in the oil, hydropower and coal sectors do not make available all necessary information about their operations, do not ensure their staff participate in training and development of biodiversity risk mitigation measures, and do not provide cofinancing to implement them	M/L	Regular working meetings and round tables, organized in partnership with the Russian Union of Manufacturers and Entrepreneurs and Russia's Global Compact Network will enable exchange of opinion and feedback from the energy sector operators at each stage of policy development. The win-win character of biodiversity solutions, reputation risk minimization and long-term economic viability of policies and biodiversity solutions induced from the policies will be the key to ensuring acceptance by the energy companies.
Partnerships cannot be established with other private sector energy operators based on experience in demonstration areas	M/L	The project will rely on partnerships with the Russian Union of Manufacturers and Entrepreneurs and Russia's Global Compact Network to engage more energy sector operators. The positive experiences gained through the project's partnerships with energy operators in the demonstration areas will be showcased as win-win opportunities for energy operators.
Methodological guidelines and modifications to the regulatory environment of energy sector operations are either not approved or not effectively enforced	M	The project's steering committee will include representatives of key ministries; will serve as the bi-annual forum for checking progress, coordination of positions, and exchange of inputs and concerns. The project will be integrated into existing government inter-agency bodies/ committees. This will help ensure the relevance and ownership of the methodological guidelines and will facilitate the approval process. In terms of effective enforcement, staff from regulatory agencies will be required to participate in capacity building workshops organized under the project.
Institutions (government and energy sector) are not willing to share information that is required for mapping exercise	L	The consultative and participatory decision-making structure of the project (through the Project Steering Committee/ Project Board) will facilitate information sharing.
Investors do not respond to new reporting on biodiversity conservation efforts	L	In developing the reporting requirements, international experience and work in the area of corporate sustainability reporting will be tapped (such as the work of Global Reporting Initiative; and the UN Global Compact and its local network in the Russian Federation) to ensure that lessons learned and best practices in sustainability reporting are followed to ensure best possible influence on investor choices.
Climate change risks such as risk of permafrost melt, vegetation zone lines changes as a result of climate change.	L	The best-practice compendiums for each sector (Components 2 - 4, first outputs) will be developed by cross-sectoral expert groups, including specialists on vegetation and permafrost changes caused by climate change; such changes will be duly accounted for when developing biodiversity solutions in each sector. In addition, in undertaking biodiversity impact assessments and identifying biodiversity risk mitigation measures in pilot sites, the expected changes to the ecosystem based on predicted climate change will also be modeled.

L = Low threat; M = Medium threat; H= High threat

2.5 Incremental Cost Assessment

Baseline

126. Under the baseline scenario, oil, coal, and hydropower facilities in Russia will not give adequate attention to biodiversity risks. The EIA process requires reporting on biodiversity information. However, in practice, the quality and completeness of information is deficient insofar as it lacks a full assessment of impacts on biodiversity (for example, inclusion of impacts on adjacent territories from blowing of coal dust) and proposals for appropriate mitigation measures. Further, for biodiversity risks that may be assessed, the emphasis will be on a reactive approach by focusing on remediation ("recultivation"), where this is possible, and not on a preventative approach that emphasizes avoidance, reduction, or offsetting

biodiversity losses caused by energy facilities. Investments by private companies and corporations on resolving environmental issues will continue to be mostly for so-called "brown field projects" (construction of treatment facilities, reduction of air pollution, recultivation of lands etc.).

The GEF Alternative and Incremental Value

127. GEF funding will be drawn upon to enhance environmental standards and enforcement where needed to protect biodiversity in ecologically sensitive areas. The project represents the first GEF intervention of this type in Russia addressing biodiversity mainstreaming into the key priority development sector – fuel and energy. In the alternative scenario, policies developed in Component 1 are likely to ensure an increase in investments by energy operators in biodiversity-solutions and their incorporation in regular sector practices. In the demonstration regions, the project will achieve an increase in the share of land without ecosystem disturbance; technologies tested in Components II-IV will ensure that ecosystems adjacent to coal, oil and hydropower sites face reduced pressures from energy operations. The project will finance the incremental costs of biodiversity management, in particular the one time costs of building management capacity and adaptive learning in the energy sectors; recurrent costs related to implementation of the avoid-reduce-remedy-offset paradigm in the demonstration regions will be cofinanced by the energy companies that will be partners at each pilot site. Overall, in terms of biodiversity impact, the added value of the project's technical assistance and investment will be reflected in "reversing" the ecosystem degradation in a number of WWF 200 Global Ecoregions in the Arctic, Siberia, Caucasus, Far East, and seascapes in Russia. (IC Analysis in Annex I.)

2.6 Cost-effectiveness

128. In line with the GEF Council's guidance on assessing project cost-effectiveness (Cost Effectiveness Analysis in GEF Projects, GEF/C.25/11, April 29, 2005), the project development team has taken a qualitative approach to identify the most cost-effective strategy for achieving the project objective. The competing scenarios for mitigating adverse impacts on biodiversity (outside PAs) from energy operations are as follows: (i) continue with the business-as-usual situation of continued reliance on obsolete technologies and land recultivation as the only mitigating measure, (ii) focus on the regulatory (policies and institutions) environment of energy operations to mainstream biodiversity conservation considerations, (iii) combine regulatory interventions with demonstration of the approach in 1 energy sector, and (iv) combine regulatory interventions with demonstration of the approach in all 3 major energy sectors.

129. The business-as-usual scenario may seem cheaper in the short run. However, prevention and early warning has proven to be a financially more solvent strategy in the long run in the international energy markets. Russian society and the NGO sector is steadily becoming more vigilant about biodiversity issues, and continued reliance on obsolete technologies that pose high threats to biodiversity hardly remains a winning strategy. This already translates into high rehabilitation and litigation costs for Russian energy operators. For instance, the cost of recultivating mined lands in boreal and tundra areas can be as high as USD 70,000/ ha. Rehabilitating 100,000 ha of degraded land alone means a one time investment of USD 7 million for just one company, not to mention the cost of lost reputation, project delays and court litigation and the negative impact on the stock price. In fact it is now becoming riskier for energy businesses in Russia to do nothing on biodiversity than to invest in its conservation. It is an opportune moment in Russian economic development for a GEF investment (comparable to the cost of one-time rehabilitation of a 100,000 ha extracted coal mine) in policy reform, institutional strengthening and demonstrations to overcome the aversion of local energy market investors and demonstrate positive effects on company reputation and cost-savings in the long term.

130. The second approach is not considered cost-effective because policy reform needs to be informed by ground realities and institutional strengthening is also most effective when undertaken in the context of concrete products and impacts that need to be delivered. Demonstration projects can provide this vital

feedback loop for informing policy reform and providing context-based capacity-building. The third approach of focusing on a single sector alone was also not considered effective because the project is the first of its kind in Russia and, given the systemic changes required, it is important to engage all three sectors together in the policy dialogue.

131. Therefore, the fourth approach was considered the most cost-effective – combining regulatory interventions with demonstration of the approach in all 3 major energy sectors. In some aspects a unified approach needs to be taken. Each energy sector has a unique set of issues that must be addressed, but there are also some key similarities such as the need for an ecosystem and biodiversity assessment process, and a biodiversity and ecosystem services valuation methodology. In the interest of efficiency, similar issues need to be addressed together. At the same, while there may be similarities in overall approach and processes across the sectors, the application will differ by energy sector. Therefore, the project needs to demonstrate and apply best management practices in each sector. For example, developing an ecosystem assessment and valuation is a similar process for the various sectors; but because each energy sector then disturbs/ impacts the ecosystem in very different ways the use of the assessment and valuation will be applied to the selection of best management practices for biodiversity conservation, and related agreements in a very different way. In order not to spread resources too thin, the project will take on limited field demonstrations in these sectors.

2.7 Sustainability

132. Ecological sustainability will be assured through the development and institutionalization of an ecosystem management process as the basis for the EIA process and for the identification of biodiversity impacts and implementation of biodiversity risk mitigation measures. By taking a dynamic ecosystem approach, issues that support ecological sustainability such as ecosystem disturbance, function, and structure are assessed in the planning process. Greater overall regulatory flexibility is created at the outset with a goal of sustaining the ecosystem throughout the lifecycle of the project.

133. Financial sustainability: The project will work with energy sector partners to implement biodiversity risk mitigation measures. Partners include Shell, Lukoil, Sakhalin Energy, SN Invest, SUEK, Rushydro and Sakha Energy. These companies are leaders in respective sectors that drive technological modernization and search for better practices that minimize adverse impacts on biodiversity (primarily due to international investment interests, involvement of international partners in management, requirements of lenders, and such). However, other companies – majority of which are in the local market – are not following suit and adopting these improved practices. The project will, therefore, collaborate with the leading, most advanced companies that currently operate above the "baseline level" to establish higher standards throughout the sectors/ regions and to reduce market and information barriers for specific biodiversity-friendly technologies. These companies are committed in principle to biodiversity mainstreaming and have also shown willingness to work with UNDP and invest in biodiversity risk mitigation measures in pilot areas through significant amounts of cofinancing.

134. Institutional sustainability will be assured by developing clearly defined processes including methodologies for ecosystem assessment, risk assessment, EIA development, and a demonstrating assessment of biodiversity impact and implementation of risk mitigating measures. Clearly defined roles and responsibilities for coordinating federal ministries will be delineated. The demonstration projects will allow the development of clearly defined roles and responsibilities between federal and regional governments as well. Engaging companies in a negotiated development of a biodiversity conservation agreement that creates a level of business certainty will enhance institutional sustainability.

2.8 Replicability

135. Replication will be achieved through the direct replication of selected project elements and practices and methods, as well as the scaling up of experiences. The project will develop and disseminate compendiums of best management practices for each of three sectors. Resources will be dedicated to organizing workshops and other forums for wide dissemination of these compendiums. Lessons learned through the pilot activities in the demonstration areas will be integrated in the compendiums.

3. PROJECT RESULTS FRAMEWORK

Applicable GEF Strategic Objective and Program: Strategic Objective 2 – To mainstream biodiversity in production landscapes/ seascapes and sectors; Strategic Priority 4 – Strengthening the policy and regulatory frameworks for mainstreaming biodiversity
Applicable GEF Expected Outcomes: Conservation and sustainable use of biodiversity incorporated in the productive landscape (area of influence of oil, coal-mining and hydropower sector operations in the demonstration areas
Applicable GEF Outcome Indicators: By project end (2016), at least 80,985 square kilometers of globally significant ecosystems (which lies outside the protected area system) benefits from reduced adverse impacts from oil, coal and hydropower sector operations.

<table>
<tr><th>Project Strategy</th><th>Objectively Verifiable Indicators</th><th>Baseline</th><th>Target[15]</th><th>Means of verification</th><th>Risks and Assumptions</th></tr>
<tr><td colspan="6">Long-term Goal (to which the project will contribute): Energy sector operations in Russia have improved capacity to minimize their adverse impacts on biodiversity so that the conservation prospects of the affected ecosystems are greatly improved.</td></tr>
<tr><td rowspan="2">Objective: To mainstream biodiversity conservation priorities into Russian energy sector development policies and into the operations of energy production sectors through pilot activities in 6 demonstration areas of the country</td><td>Increase in hectares of land currently under energy exploitation or impacted from historic practices that are being restored to an agreed upon level of ecosystem function and biodiversity (as defined through the ecosystem-based biodiversity impact assessment) with special emphasis on key habitats for regionally sensitive species within each of the pilot areas</td><td>Oil: 0 km^2
Hydropower: 0 km^2
Coal: 0 km^2</td><td>Oil: 59 200 km^2
Hydropower: 20 260 km^2
Coal: 1 525 km^2</td><td>Field surveys</td><td rowspan="2">Key government actors/ institutions are fully engaged and committed to the project strategy and internalize and support replication of the project strategy

Partnerships can be established with other private sector energy operators based on experience in demonstration areas</td></tr>
<tr><td>Ecosystem Integrity Index of the Russian Independent Rating Agency for the demonstration areas improves 5 years after adoption of regulations and policies (index is estimated as a ratio of environmental efficiency in the region to the average environmental efficiency of the Russian economy)</td><td colspan="2"><table><tr><th></th><th>B/L</th><th>Tgt.</th></tr><tr><td>Nenetsk</td><td>2.28</td><td>3.0</td></tr><tr><td>Sakhalin</td><td>2.47</td><td>3.0</td></tr><tr><td>North Caspian</td><td>0.76</td><td>1.0</td></tr><tr><td>Yakutia</td><td>0.83</td><td>1.0</td></tr><tr><td>Kemerovo</td><td>0.40</td><td>0.5</td></tr><tr><td>Khakassia</td><td>0.85</td><td>1.0</td></tr></table></td><td>Records of Russian Independent Rating Agency</td></tr>
<tr><td rowspan="3">Outcome 1 (Enabling environment)</td><td>Improved EIA policies, with thorough ecosystem and biodiversity impact assessment process, applied to new energy projects entering EIA approval process</td><td>0</td><td>100%</td><td>Official records on EIA approvals</td><td rowspan="3">All methodological guidelines and modifications to the regulatory environment of energy sector operations are approved

Institutions (government and energy sector) are willing to share information that is required for mapping exercise

Investors respond to new</td></tr>
<tr><td>GIS-based mapping of sensitive areas integrated in territorial planning of all major energy regions of RF</td><td>0</td><td>4</td><td>Records of regional and district territorial planning authorities</td></tr>
<tr><td>Increase in investments in biodiversity conservation by</td><td>To be documented within 1st 3 months of project</td><td>20%</td><td>Records/ reports of energy companies</td></tr>
</table>

[15] The time frame for realizing project targets is 2016, unless otherwise specified.

<table>
<tr><th>Project Strategy</th><th>Objectively Verifiable Indicators</th><th>Baseline</th><th>Target[15]</th><th>Means of verification</th><th>Risks and Assumptions</th></tr>
<tr><td></td><td>energy companies over baseline five years after international best practices in mainstreaming are successfully demonstrated in pilot sites</td><td></td><td></td><td></td><td>reporting on biodiversity conservation efforts</td></tr>
<tr><td></td><td>Major energy companies in demonstration areas report on biodiversity conservation expenditures separate from general environmental protection investments</td><td>0</td><td>100%</td><td>Records/ reports of energy companies</td><td></td></tr>
<tr><td>Outcome 2
(Oil pilots)</td><td>Populations of key species in oil sector demonstration areas remain stable
(due to space limitations in the logframe, specific risk avoidance/ mitigation/ offsetting solutions and technologies that will be implemented to reduce pressures and therefore improve status of these species are described in Annex B in the UNDP Project Document)</td><td colspan="2"><table>
<tr><th></th><th>Species</th><th>Baseline</th><th>Target</th></tr>
<tr><td>Nenetsk pilot sites</td><td>Nelma (Stenodus leucichthys nelma)</td><td>Pechora Delta - from 14% to 17,5% in the catches</td><td>Share of nelma in catches no less than 15 %</td></tr>
<tr><td></td><td>Peregrine falcon (Falco peregrinus, Tunstall)</td><td>Pechora Delta - 8 nesting pairs Kolguev island, Peschanoozerskoe oil&gas field – 2-4 pairs</td><td>Population number does not decrease</td></tr>
<tr><td></td><td>Bewick's swan (Cygnus bewickii Yarrell)</td><td>Kolguev island, Peschanoozerskoe oil&gas field -- 15 nesting pairs Pechora Delta -- 80-90 pairs</td><td>Population number does not decrease</td></tr>
<tr><td></td><td>White-tailed sea eagle (Haliaeetus albicilla, L)</td><td>Pechora Delta - 3-5 nesting pairs</td><td>Population number does not decrease</td></tr>
<tr><td>Sakhalin pilot sites</td><td>Grey whale (Eschrichtius robustus)</td><td>136 (census dated 2009)</td><td>Population number for the Okhotsk-Korean population of grey whales gradually increasing (approximately by 2% a year)</td></tr>
<tr><td></td><td>Steller’s Sea-eagle (Haliaeetus pelagicus)</td><td>550-600 adults</td><td>Stable population number</td></tr>
<tr><td></td><td>Sakhalin</td><td>1600 adults</td><td>Stable</td></tr>
</table></td><td>Field surveys</td><td>Partner companies in the oil sector make available all necessary information about their operations, ensure their staff participate in training and identification of biodiversity risk mitigation measures, and provide cofinancing to implement them</td></tr>
</table>

<table>
<tr><th>Project Strategy</th><th>Objectively Verifiable Indicators</th><th>Baseline</th><th>Target[15]</th><th>Means of verification</th><th>Risks and Assumptions</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td>Taimen (Parahucho perryi)</td><td></td><td>population number</td></tr>
<tr><td>North Caspian pilot sites</td><td>Dalmatian pelican (Pelecanus crispus</td><td>50-70 nesting pairs in the Northern Caspian coastal zone</td><td>The population number in the zone of off-shore hydrocarbon development infrastructure is unchanged</td></tr>
<tr><td></td><td>European coot (Fulica atra)</td><td>170 000 (after the breeding season) on the Caspian coastal areas of Kalmykia 2 -5 nesting pairs per 1 ha of the habitat</td><td>The population number in the zone of off-shore hydrocarbon development infrastructure is unchanged</td></tr>
<tr><td></td><td>Caspian seal (Phoca caspica)</td><td>5 500 pairs (female with youth) (data from aerial visual survey, 2008)</td><td>The population number is not decreasing</td></tr>
<tr><td></td><td>Round gobi (Neogobius melanostomus)</td><td>300 fish caught per hour of trawl fishing by standard trawl</td><td>The population is not decreasing</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>Outcome 3 (Hydropower pilots)</td><td>Populations of key species in hydropower sector demonstration areas remain stable
(due to space limitations in the logframe, specific risk avoidance/ mitigation/ offsetting solutions and technologies that will be implemented to reduce pressures and therefore improve status of these species are described in Annex B in the UNDP Project Document)</td><td>
<table>
<tr><td></td><td>Species</td><td>Baseline</td><td>Target</td></tr>
<tr><td>Yakutia pilot sites</td><td>Siberian grouse (Dendragapus falcipennis)</td><td>0,2-0,4 birds per one km of census route</td><td>Species population number is restored for the suitable habitats in the river valleys of the southern Yakutia</td></tr>
<tr><td></td><td>Eagle owl (Bubo bubo jakutensis)</td><td>5-8 pairs per 100 km of the Timpton River valley</td><td>The species population number does not decrease</td></tr>
<tr><td></td><td>Siberian newt (Salamandrella keyserlingii)</td><td>25 newts per 100 measurement units (trap-days)</td><td>The species population number does not decrease</td></tr>
</table>
</td><td></td><td>Field surveys</td><td>Partner companies in the hydropower sector make available all necessary information about their operations, ensure their staff participate in training and identification of biodiversity risk mitigation measures, and provide cofinancing to implement them</td></tr>
<tr><td></td><td>Reduction in size of ecosystems inundated by reservoirs</td><td>26.5 ha/ 1 million kW h of electricity generated</td><td>13 ha/ 1 million kW h of electricity generated</td><td>Field surveys</td><td></td></tr>
<tr><td>Outcome 4 (Coal mining pilots)</td><td>Populations of key species in coal sector demonstration areas remain stable</td><td>
<table>
<tr><td></td><td>Species</td><td>Baseline</td><td>Target</td></tr>
<tr><td>Khakassia</td><td>Sheld-Duck</td><td>3,7 (2.0-</td><td>Population number</td></tr>
</table>
</td><td></td><td>Field surveys</td><td>Partner companies in the coal sector make available all necessary information about</td></tr>
</table>

Project Strategy	Objectively Verifiable Indicators	Baseline		Target[15]		Means of verification	Risks and Assumptions
	(due to space limitations in the logframe, specific risk avoidance/ mitigation/ offsetting solutions and technologies that will be implemented to reduce pressures and therefore improve status of these species are described in Annex B in the UNDP Project Document)	pilot sites	*(Tadorna tadorna*)	5.7) birds per 1km^2 (within the suitable areas)	increases by 5% due to diversification of the habitat as a result of proper reclamation		their operations, ensure their staff participate in training and identification of biodiversity risk mitigation measures, and provide cofinancing to implement them
			Grey heron (*Ardea cinerea)*	Colony of 30 pairs and 120 young birds	Population number within the colony stays the same/increases		
	Undisturbed Rocky steppe ecosystems in demonstration areas	Area of undisturbed rocky steppe ecosystems in Kemerovo pilot sites (To be measured in Year 1)		No decrease		Field surveys	
	Mineral content, bacteria pollution level, particle content, heavy metal content, pH factor in the treated mine drainage water	Baseline measured in Kemerovo pilot sites in Year 1		Quality of water discharged after treatment is according to the environmental norms and regulations			

4. TOTAL BUDGET AND WORKPLAN

Award ID:	00060984
Award Title:	PIMS 4241 BD FP: Mainstreaming biodiversity conservation into Russia's energy sector policies and operations
Business Unit:	RUS10
Project Title:	PIMS 4241 BD FP: Mainstreaming biodiversity conservation into Russia's energy sector policies and operations
Project number in Atlas:	00077026
Implementing Partner (Executing Agency)	Ministry of natural resources and environment of the Russian Federation (MNRE)

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	Budget note
COMPONENT 1: Enabling policy, legislative and institutional environment is in place for mainstreaming biodiversity conservation considerations in the oil, hydropower and coal sectors institutional environment	**MNRE**	**62000**	**GEF**	71200	International Consultant	30 000	60 000	30 000			120 000	1
				71300	Local Consultants	96 000	96 000	96 000	96 000	72 000	456 000	2
				71600	Travel	10 000	10 000	10 000	10 000	10 000	50 000	3
				72100	Contractual services	130 000	280 000	50 000	30 000	10 000	500 000	4
				74100	Professional services	5 000		40 000	5 000	50 000	100 000	5
				74200	Audio visual and printing costs			6 000	6 000	6 000	18 000	6
				74500	Miscellaneous	3 000	3 000	3 000	3 000	3 000	15 000	7
				75700	Workshops	40 000	15 000	15 000	15 000	30 000	115 000	8
				Total Outcome 1		**314 000**	**464 000**	**250 000**	**165 000**	**181 000**	**1 374 000**	
COMPONENT 2: "Avoid-reduce-remedy-offset" principle is demonstrated for the oil sector	**MNRE**	**62000**	**GEF**	71200	International Consultant	10 000	30 000	30 000	20 000		90 000	9
				71300	Local Consultants	154 300	154 300	154 300	154 300	154 300	771 500	10
				71600	Travel	17 000	17 000	17 000	17 000	17 000	85 000	11
				72100	Contractual services	115 000	240 000	260 000	185 000	55 000	855 000	12
				74200	Audio visual and printing costs		4 000	10 000	15 000	20 000	49 000	13
				74500	Miscellaneous	4 000	4 000	4 000	4 000	4 000	20 000	14
				75700	Workshops	10 000	10 000	15 000	15 000	20 500	70 500	15
				Total Outcome 2		**310 300**	**459 300**	**490 300**	**410 300**	**270 800**	**1 941 000**	
COMPONENT 3: "Avoid-reduce-remedy-offset" principle is demonstrated for the hydropowerl sector	**MNRE**	**62000**	**GEF**	71200	International Consultant	10 000	30 000	30 000	20 000		90 000	16
				71300	Local Consultants	82 300	82 300	82 300	82 300	82 300	411 500	17
				71600	Travel	14 000	14 000	14 000	14 000	14 000	70 000	18
				72100	Contractual services	118 000	268 000	243 000	203 000	97 000	929 000	19
				74200	Audio visual and printing costs		5 000	10 000	14 000	15 000	44 000	20
				74500	Miscellaneous	4 000	4 000	4 000	4 000	4 000	20 000	21
				75700	Workshops	7 000	12 000	12 000	12 000	18 000	61 000	22
				Total Outcome 3		**235 300**	**415 300**	**395 300**	**349 300**	**230 300**	**1 625 500**	
COMPONENT 4: "Avoid-reduce-remedy-	**MNRE**	**62000**	**GEF**	71200	International Consultant	10 000	30 000	30 000	20 000		90 000	23
				71300	Local Consultants	106 300	106 300	106 300	106 300	106 300	531 500	24

offset" principle is demonstrated for the coal sector				71600	Travel	15 000	15 000	15 000	15 000	15 000	75 000	25
				72100	Contractual services	95 000	245 000	235 000	185 000	50 000	810 000	26
				74200	Audio visual and printing costs		5 000	10 000	14 000	20 000	49 000	27
				74500	Miscellaneous	4 000	4 000	4 000	4 000	4 000	20 000	28
				75700	Workshops	10 000	15 000	15 000	15 000	20 000	75 000	29
				Total Outcome 4		**240 300**	**420 300**	**415 300**	**359 300**	**215 300**	**1 650 500**	
PROJECT MANAGEMENT	**MNRE**	**62000**	**GEF**	71400	Project personnel	90 000	90 000	90 000	90 000	90 000	450 000	30
				71600	Travel	5 000	5 000	5 000	5 000	5 000	25 000	31
				72200	Equipment	15 000			5 000		20 000	32
				72400	Communications	4 000	4 000	4 000	4 000	4 000	20 000	33
				72500	Supplies	4 000	4 000	4 000	4 000	3 000	19 000	34
				74100	Audit		10 000	10 000	10 000	20 000	50 000	35
				74500	Miscellaneous	5 000	5 000	5 000	5 000	5 000	25 000	36
				Total Project Management		**123 000**	**118 000**	**118 000**	**123 000**	**127 000**	**609 000**	
PROJECT TOTALS						**1 222 900**	**1 876 900**	**1 668 900**	**1 406 900**	**1 024 400**	**7 200 000**	

Budget notes:

##	**Description**
1.	International consultants on ecosystem assessment; economic valuation of biodiversity and GIS consultant
2.	Project manager's technical input ($4K/m x 50% = $120K); Senior Technical Advisor - policies and EIA Team Leader ($4K/m=$240K); GIS and BD data management expert national ($96K: $24/Ys 1-4))
3.	SC/Board meetings (annual), trips of STA, GIS and BD valuation team
4.	GIS, ecosystem assessment and BD information management - output 1.4 ($360K= $100K/Y1+$230K/Y2+$10K/Ys 3-5); economic evaluation of ecosystems and BD ($60K); EIA regulations, statistical and market reporting -outputs 1.2;1.3; 1.5 ($80K = $20K/Ys1-4)
5.	Reporting and lessons learned: MTE, FE, Inception and terminal reports, lessons learned (see M$E budget)
6.	Publication of guidelines, promo materials and final report
7.	Miscellaneous expenses: BD information and GIS working group; BD policy and regulations working group
8.	3 sectoral conferences and training workshops - Output 1.1.
9.	Intl. BD mainstreaming consultant/s – oil sector ($3K/week x 30 weeks)
10.	Pilot site technical experts ($2K/m x 3sites = $360K); Policy expert – oil sector ($3K/m=$180K); Communication expert ($2600/m x 33% = $51500), Business engagement expert ($3K x 33% = $60K); Community engagement and stakeholders consultations expert ($2K/m = $120K);
11.	Annual visits to pilot sites (Sakhalin, NAO, Caspian) by the project team, government experts and technical experts; business trips of the technical project experts and consultants
12.	Compendium of BD solutions team ($130K); BD expert assessment and monitoring ($120K); Demo projects on BD risk reduction – output 2.4. ($450K); Community engagement and (social survey, community councils and community agreements) in 3 pilot sites and replication ($95K); BD mainstreaming into oil sector regulations ($60K)
13.	Publication of BD solution compendium, best practice notes, technical reports and promo materials.
14.	Miscellaneous expenses: BD impacts assessment working group, oil sector technologies working group
15.	Training and expert workshops on BD solutions compendium; community participation; BD impact assessment and risk reduction workshops and consultations. Lessons learned conference – year 5.
16.	Intl. BD mainstreaming consultant/s – hydropower sector ($3K/week x 30 weeks)
17.	Pilot site technical expert ($2K/m = $120K); Policy expert – oil sector ($3K/m=$180K); Communication expert ($2600/m x 33% = $51500), Business engagement expert ($3K x 33% = $60K);
18.	Annual visits to pilot sites (Sakha Republic) and potential replication sites by the project team, government experts and technical experts; business trips of the technical project experts and consultants

19.	Compendium of BD solutions team ($109K); BD expert assessment and monitoring ($105K); Demo projects on BD risk reduction – output 3.4. ($350K); BD offset design and implementation ($100K); BD mainstreaming into oil sector regulations ($55K); Small hydro power assessments ($120K); Moderation of the hydropower thematic community "White Book: Dams and Development" ($90K)
20.	Publication of BD solution compendium, White Book: Dams and development; best practice notes, technical reports and promo materials.
21.	Miscellaneous expenses: BD impacts assessment working group, hydropower sector technologies working group
22.	Training and expert workshops on BD solutions compendium; community participation; BD impact assessment and risk reduction workshops and consultations. Expert forum of the Solution Exchnage Thematic Community on hydropower. Lessons learned conference – year 5.
23.	Intl. BD mainstreaming consultant/s – coal sector ($3K/week x 30 weeks)
24.	Pilot site technical expert ($2K/m x 2 sites = $240K); Policy expert – oil sector ($3K/m=$180K); Communication expert ($2600/m x 33% = $51500), Business engagement expert ($3K x 33% = $60K);
25.	Annual visits to pilot sites (Khakassia Republic and Kemerovo oblast) and potential replication sites by the project team, government experts and technical experts; business trips of the technical project experts and consultants
26.	Compendium of BD solutions team ($130K); BD expert assessment and monitoring ($120K); Demo projects on BD risk reduction – output 3.4. ($400K); BD offset design and implementation ($100K); BD mainstreaming into oil sector regulations ($60K)
27.	Publication of BD solution compendium, best practice notes, technical reports and promo materials.
28.	Miscellaneous expenses: BD impacts assessment working group, coal sector technologies working group
29.	Training and expert workshops on BD solutions compendium; community participation; BD impact assessment and risk reduction workshops and consultations. Lessons learned conference – year 5.
30.	Project personnel: Project manager ($4K/m x 50% = $120K), Project Assistant ($2500/m=$150K); Project accountant and finance assistant - part time ($2K/m=$120K), IT support part time ($1K/m=$60K)
31.	Management-related travel to project sites – field visits/annually
32.	Office equipment and laptops for PMU
33.	Communications costs for staff while traveling – mobile cards, skype out calls, etc.. and office communication costs (internet, intercity phones)
34.	Office supplies, batteries, cartridges, etc.
35.	Annual financial audit costs ($10K annually starting from Y2)
36.	Miscellaneous office and project expenses

Summary of Funds: [16]

	TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
GEF	7 200 000	1,222,900	1,876,900	1,668,900	1,406,900	1,024,400
Lukoil Lower Volga	2,500,000					
SUEK	5,583,300					
Sakhalin Energy	10,750,000					
Rushydro	4,590,000					
Sakha Energy	1,933,000					
Shell	200,000					
NAO Admin	76,700					
Sakha Govt	120,000					
SN Invest	5,667,000					
UNDP	530,000					
TOTAL cofinancing	**31,950,000**					

[16] All co-financing (cash and in-kind) that is not passing through UNDP.

5. MANAGEMENT ARRANGEMENTS

5.1 Institutional Arrangements

136. UNDP is the Implementing Agency for this project. In line with UNDP's comparative advantages within GEF, the project will focus on enabling regulatory environment, technical assistance and capacity building. In implementing this project UNDP will specifically build upon (i) profound experience, presence and networks in the regions of the Russian Federation (provinces) acquired through implementation of its GEF – funded biodiversity and CC portfolio, (ii) partnerships with leading corporate sector and UNDP Russia's role as a facilitator of the Russian Network of the UN Global Compact. The United Nations Development Programme (UNDP) is one of four UN agencies supporting the implementation of the Global Compact. Through its worldwide network of country offices and its role as the overall coordinator of UN activities at the country level, UNDP holds the primary responsibility for introducing and operationalizing the Global Compact at the field level in developing countries and countries with emerging economies. Due to UNDP efforts, to date, the Global Compact has been initiated, or is in the process of being initiated, in the following developing countries and countries with emerging economies: China, India, Lebanon, The Philippines, Ghana, Nigeria, Cameroon, Panama, Latvia, Turkey, Poland, Thailand, Malaysia, Uruguay, Chile, Brazil and Russia; (iii) UNDP's experience in implementing 32 GEF – funded projects in biodiversity conservation in the region through its network of 26 Country Offices. UNDP-GEF is supporting efforts to mainstream biodiversity in production systems through biodiversity projects covering an area of 54,952,198 hectares in terms of demonstration activities, and indirectly, through reform of policies, strategies and institutional structures, an area of 115,309,990 hectares. Under mainstreaming, UNDP-GEF activities aim to modify production methods by piloting and adapting production measures that satisfy both development and conservation fundamentals, or that do so at acceptable levels of tradeoff; (iv) lessons from GEF regional environmental programmes in the Black Sea and Caspian Sea led by UNDP; (v) the work on strengthening governance for extractive industries undertaken by UNDP's Oslo Governance Centre; (vi) the UNDP Country Programme in the Russian Federation (2008-2010) which outlines biodiversity conservation among key priorities, and has over 10 years of experience in supporting technical assistance and investment biodiversity projects, both GEF and other donor-funded; and (vii) several years of experience of implementing on the ground to strengthen the governance in the extractive industries sectors in numerous countries, including Belarus, Iraq, Cambodia, Mauritania, Nigeria, Ecuador. In many of these countries, UNDP, often with GEF funding, has helped to develop policies and technical codes that integrate conservation of biodiversity by peat, gold, oil, gas and coal mining industries, and to test biodiversity compatible mining and site rehabilitation techniques

5.2 Project Implementation Arrangements

137. The Government of Russia (GOR) represented by the Ministry of Natural Resources and Environment (MNRE – National Implementing Partner) will execute the project according to UNDP NIM modality. The governmental Implementing Partner's responsibilities will include: (i) certifying expenditures under approved budgets and work plans; (ii) tracking and reporting on procurement and outputs; (iii) coordinating the financing from UNDP and GEF with that from other sources; (iv) preparation/ approval of Terms of Reference for contractors and required tender documentation; and (v) chairing the Project Board. The National Implementing Partner-will also facilitate the implementation of the required policy reforms.

138. In order to facilitate participatory decision-making, a Project Board (Steering Committee) will be formed to provide overall guidance and support for project implementation activities. To allow for

effective decision-making and coordination with other projects, the Project Board will include the following representatives: the federal government (the MNRE, Ministry of Energy, Ministry of Regional Development), UNDP Country Office, Regional Administrations of the demonstration regions, representatives of energy companies that will be key partners in piloting biodiversity mainstreaming in the demonstration areas, representatives of research institutions in the demonstration areas, and representatives of environmental NGOs in the demonstration areas. Given that Indigenous Peoples (IPs) are important stakeholders in some of the project's demonstration areas, RAIPON (Russian Association of Indigenous Peoples Organizations)[17] will also be part of the Project Board. Finally, relevant international environmental projects might wish to nominate their representatives as observers to the Project Board. The Project Board will monitor project implementation to ensure timely progress in attaining the desired results, and efficient coordination with other projects.

139. Project Board (Steering Committee) is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. It plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies.

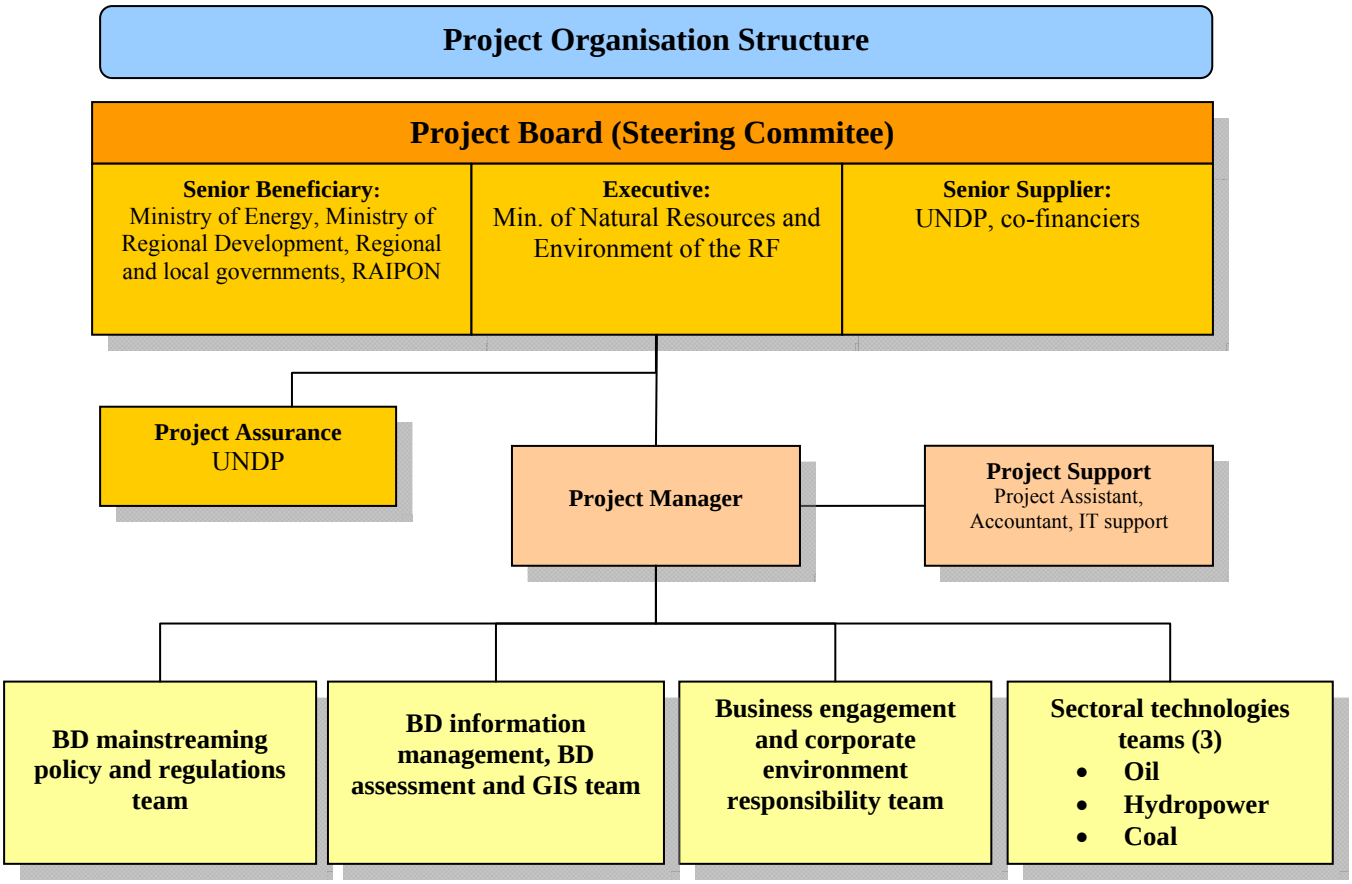
140. The Project Board (Steering Committee) contains the following distinct roles, including:

1) **An Executive**: individual representing the project ownership to chair the group.
    - *Ministry of Natural Resources and Environment of RF*
2) **Senior Supplier**: individuals representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project.
    - *UNDP, co-financiers*
3) **Senior Beneficiary**: individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries.
    - *Ministry of Energy, Ministry of Regional Development, Regional and local governments in pilot regions, RAIPON*
4) The **Project Assurance** role supports the Project Board Executive by carrying out objective and independent project oversight and monitoring functions. The Project Manager and Project Assurance roles should never be held by the same individual for the same project.
    - *UNDP*

141. The Project Board will meet twice in the first year and annually thereafter to review project progress and set major policy and implementation directions as required. The National Project Director (NPD) will chair the Project Board. The NPD, who will be designated by the MNRE, will be responsible for carrying out the directives of the Project Board and for ensuring the proper implementation of the project on behalf of the Government. In doing so, the NPD will be responsible for project delivery, reporting, accounting, monitoring and evaluation, and for the proper management and audit of project resources.

[17] RAIPON is an association representing the interests of IPs and is recognized by the government. It has represented the interests of IPs in a previous UNEP-GEF project.

142. The UNDP Country Office will support the project's implementation by maintaining the project budget and project expenditures, contracting project personnel, experts and subcontractors, carrying out procurement, and providing other assistance upon request of the National Implementing Partner. UNDP will be responsible for: (i) financial management; and (ii) the final approval of payments to vendors, the procurement of goods, the approval of Terms of Reference, recruitment of consulting services, and sub-contracting upon request of the National Implementing Partner. The UNDP Country Office will also monitor the project's implementation and achievement of the project outputs and ensure the proper use of UNDP/GEF funds. Financial transactions and reporting will be carried out in compliance with the national regulations and UNDP rules and procedures for national execution. The UNDP Country Office will ensure the implementation of the day-to-day management and monitoring of the project operations through the appointed official in the UNDP Environment Unit and Project Officer based in Moscow. The implementation arrangements for the project have been designed to maximize transparency and accountability. Disbursement figures will be made publicly available. These arrangements have been accepted by all stakeholders.



143. Reporting to the NPD and UNDP will be the Project Manager (PM). The PM will be in charge of daily implementation of the project and managing project activities and the smooth functioning of the Project Management and Coordination Unit (PMCU). The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The PMCU will be a small unit comprised of the PM, an Administrative Assistant, and a Finance Assistant. Also assisting the PM will be a Senior

Technical Advisor (STA), who will be responsible for technical oversight of all project work in the six pilot sites. He/she will oversee one Pilot Site Technical Expert (PSTE) in each of the pilot sites. Each PSTE will be responsible for working closely with stakeholders, consultants, and contractors in each pilot site to implement technical demonstration projects efficiently, effectively, and in a participatory manner.

144. Members of the PMCU will be full time employees of the project and will be chosen in an open and competitive manner following standard UNDP hiring procedures. The PM will be also responsible for the working level co-ordination of the other on-going relevant national and international projects, reporting to the appointed official in the UNDP Environment Unit. The PM's time will be split 30% for management and 70% for technical input.

5.3. Use of institutional logos on project deliverables

145. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo will appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF.

5.4. Audit arrangements

146. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the User Guide and Finance Manual. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

6. MONITORING FRAMEWORK AND EVALUATION

147. The project team and the UNDP Country Office (UNDP-CO) supported by the UNDP-GEF Regional Coordination Unit in Bratislava will be responsible for project monitoring and evaluation conducted in accordance with established UNDP and GEF procedures. The Project Results Framework provides performance and impact indicators for project implementation along with their corresponding means of verification. The GEF SO-2 Tracking Tool (Annex A) will also be used to monitor progress in mainstreaming biodiversity conservation objectives into energy sector policies and operations. The M&E plan includes: inception workshop and report, project implementation reviews, quarterly and annual review reports, independent mid-term evaluation, and independent final evaluation. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be finalized and presented in the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

Project Inception Phase

148. A Project Inception Workshop will be conducted with the full project team, government counterparts, co-financing partners, the UNDP-CO, and representatives from the UNDP-GEF Regional Coordinating Unit (Bratislava). A fundamental objective of the Inception Workshop will be to help the project team to understand and take ownership of the project's goal and objective, and to prepare the project's first annual work plan based on the logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions and expected outcomes), providing additional detail as needed, and then finalizing the Annual Work Plan (AWP) with measurable performance indicators. The

Inception Workshop (IW) will also: (i) introduce project staff to the UNDP-GEF team (the CO and responsible Regional Coordinating Unit staff) that will support project implementation; (ii) detail the responsibilities of UNDP-CO and RCU staff vis-à-vis the project team; (iii) detail the UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs), and mid-term and final evaluations. The IW will also inform the project team regarding UNDP project related budgetary planning, budget reviews, and mandatory budget re-phasing. The overall objective of the IW is that all parties understand their roles, functions, and responsibilities within the project's decision-making structures; and that reporting and communication lines and conflict resolution mechanisms are clear to all. Terms of Reference for project staff and decision-making structures will be again discussed to clarify each party's responsibilities during project implementation.

Monitoring responsibilities and events

149. Project management, project partners and stakeholder representatives will collaborate on the development of a detailed schedule of project review meetings to be incorporated in the Project Inception Report. The schedule will include: (i) tentative time frames for Project Board Meetings and (ii) project related Monitoring and Evaluation activities. The Project Manager will be responsible for day-to-day monitoring of implementation progress based on the Annual Work Plan and indicators. The Project Manager will inform the UNDP-CO of any delays or difficulties so that appropriate and timely corrective measures can be implemented. At the IW, the Project Manager, project team, UNDP-CO, and UNDP-GEF Regional Coordinating Unit will fine-tune the project's progress and performance/ impact indicators and will develop specific targets and their means of verification for the first year's progress indicators. Every year the project team will define targets and indicators as part of the internal evaluation and planning processes.

150. The Project Board Meetings (PBM) will be responsible for twice a year project monitoring. The PBM will be the highest policy-level meeting of the partners involved in project implementation. The first such meeting will be held within the first six months of the start of full implementation.

151. The Project Manager in consultation with UNDP-CO and UNDP-GEF RCU will prepare a UNDP-GEF PIR/APR for submission to PBM members and the Project Board for review and comments and for discussion at the PB meeting. The Project Manager will highlight policy issues and recommendations and will inform participants of agreements reached by stakeholders during the PIR/APR preparation on how to resolve operational issues. Separate reviews of each project component will be conducted as necessary. Benchmarks will be developed at the Inception Workshop, based on delivery rates and on qualitative assessments of achievements of outputs. A terminal PBM will be held in the last month of project operations. The Project Manager will prepare a Terminal Report for submission to UNDP-CO and UNDP-GEF RCU at least two months in advance of the terminal PBM to allow for review and to serve as the basis for discussions in the PBM. The terminal meeting will consider project implementation, achievement of project objectives, contribution to broader environmental objectives, actions needed to sustain project results, and ways that lessons learnt can feed into other projects being developed or implemented.

152. UNDP Country Office, UNDP-GEF RCU, and any other members of the Project Board will annually assess (with detailed scheduling agreed upon at the project Inception Report/ AWP) progress at the project sites. No less than one month after the visit, the CO and UNDP-GEF RCU will prepare a Field Visit Report/ BTOR to be circulated to the project team, all Project Board members, and UNDP-GEF.

Project Reporting

153. The Project Manager in conjunction with the UNDP-GEF extended team will prepare and submit reports that form part of the monitoring process. The first six reports are mandatory and strictly related to monitoring; while the last two have broader functions such that their frequency and nature are project specific to be defined throughout implementation.

154. A Project Inception Report will be prepared immediately after the Inception Workshop. It will include a detailed First Year / Annual Work Plan divided in quarterly timeframes detailing activities and progress indicators guiding first year project implementation. This Work Plan will include dates of specific field visits, support missions from the UNDP-CO, the Regional Coordinating Unit (RCU), or consultants, and scheduling of the project's decision-making structures. The Report will also include a detailed project budget for the first full year of implementation based on the Annual Work Plan and the monitoring and evaluation requirements for the first year. The Inception Report will also detail the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project partners. The IR will also discuss progress to date on project establishment, start-up activities, and an update of changed external conditions that may effect project implementation. The finalized report will be circulated to project counterparts who will be given one calendar month in which to respond with comments or queries. The UNDP Country Office and UNDP-GEF Regional Coordinating Unit will review the document prior to circulation of the IR.

155. The Project Implementation Review (PIR) is an annual management and monitoring tool mandated by the GEF that has become the main vehicle for extracting lessons learned from ongoing projects. The CO and project team must provide the PIR generated using a participatory approach after one year of project implementation, with submission in July followed by discussion with the CO and the UNDP-GEF Regional Coordination Unit in August and final submission to the UNDP-GEF Headquarters in the first week of September.

156. Quarterly progress reports: The project team will provide short reports each quarter outlining main updates in project progress. Reports will be submitted to the local UNDP Country Office and the UNDP-GEF RCU.

157. UNDP ATLAS Monitoring Reports: A quarterly Combined Delivery Report (CDR) summarizing all project expenditures is mandatory and will be certified by the Implementing Partner. The following logs are to be maintained and updated throughout the project by the Project Manager: (i) The Issues Log captures and tracks the status of all project issues throughout project implementation; (ii) the Risk Log (using Atlas) captures potential risks to the project and associated measures to manage risks; and (iii) the Lessons Learned Log captures insights and lessons based on good and bad experiences.

158. Project Terminal Report: The project team will prepare the Project Terminal Report in the last three months of the project. This comprehensive report will summarize all activities, achievements, and outputs of the Project, lessons learnt, objectives met or not achieved, and structures and systems implemented. The PTR will be the definitive statement of the Project’s activities over its lifetime, recommending any further steps needed to ensure sustainability and replicability of the Project’s activities.

159. Periodic Thematic Reports: The project team will prepare Specific Thematic Reports when called for by UNDP, UNDP-GEF, or the Implementing Partner. The written request by UNDP for a Thematic Report provided to the project team will clearly state the issue or activities that need to be reported on. These reports can deal with lessons learnt, specific oversight in key areas, or troubleshooting to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

160. Technical Reports are detailed documents covering specific areas of analysis or scientific issues in the project. As part of the Inception Report, the project team will prepare a draft Reports List that details which technical reports need to be prepared over the course of the Project and their tentative due dates. This Reports List will be revised and updated as necessary, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined research areas within the project framework. These technical reports will represent the project's substantive subject-matter contributions to be included in dissemination of results at local, national and international levels; and as such will be produced in a consistent and recognizable format.

161. Project Publications will crystallize and disseminate project results and achievements; can include scientific journal articles, informational texts, or multimedia publications; and can be based on selected Technical Reports or syntheses of a series of Technical Reports. The project team in consultation with UNDP, government partners and other stakeholders will determine if any of the Technical Reports merit formal publication and appropriate financial support.

Independent evaluations

162. The project will require at least two independent evaluations. A Mid-Term Evaluation will assess outcome achievements; will identify needed course corrections; will examine the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; will present initial lessons learned about project design, implementation and management; and will provide recommendations to improve implementation of the second and final half of the project. The UNDP CO in collaboration with the UNDP-GEF Regional Coordinating Unit will develop the organization, terms of reference, and timing of the mid-term evaluation

163. An independent external Final Evaluation will take place three months prior to the terminal Project Board meeting and will focus on the same issues as the mid-term evaluation as well as on the impact and sustainability of results, capacity building, achievement of global environmental goals, and recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the UNDP-GEF Regional Coordinating Unit.

Learning and knowledge sharing

164. Project results will be disseminated within and beyond the project intervention zone via information sharing networks and forums including the UNDP-GEF networks that involve senior personnel of similar and related projects. UNDP-GEF Regional Unit has established an electronic platform for sharing lessons learned among project coordinators. The project will participate in relevant scientific, policy-based and other networks that can benefit project implementation via lessons learned; and will share its own lessons learned with other similar projects. Identification and analyses of lessons learned will be provided and communicated annually. UNDP-GEF will provide a format and assist the project team in categorizing, documenting and reporting on lessons learned.

Table 4. Project Monitoring and Evaluation Plan and Budget

Type of M&E activity	Responsible Parties	Budget US$	Time frame
Inception Workshop (IW)	Project Manager Ministry of Environment, UNDP, UNDP GEF	5,000	Within first three months of project start up
Inception Report	Project Team Project Board, UNDP CO	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team	To be finalized in Inception Phase and Workshop. $5,000 (to be fed into the Inception Report)	Start, mid and end of project

Type of M&E activity	Responsible Parties	Budget US$	Time frame
	members		
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	Oversight by Project GEF Technical Advisor and Project Manager Measurements by regional field officers and local IAs	To be determined as part of the Annual Work Plan's preparation. Cost to be covered by field survey budget.	Annually prior to APR/PIR and to the definition of annual work plans
PIR	Project Team Project Board UNDP-GEF	None	Annually
Project Board meetings	Project Manager	10,000 x 5 years	Following IW and annually thereafter.
Technical and periodic status reports	Project team Hired consultants as needed	5,000	TBD by Project team and UNDP-CO
Mid-term External Evaluation	Project team Project Board UNDP-GEF RCU External Consultants (evaluation team)	40,000	At the mid-point of project implementation.
Final External Evaluation	Project team, Project Board, UNDP-GEF RCU External Consultants (evaluation team)	40,000	At the end of project implementation
Terminal Report	Project team Project Board External Consultant	None	At least one month before the end of the project
Audit	UNDP-CO Project team	10,000 x 5 years	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	UNDP-CO, UNDP-GEF RCU Government representatives	5,000 x 5 years	Yearly average one visit per year
TOTAL indicative COST Excluding project and UNDP staff time costs		220,000	

7. LEGAL CONTEXT

165. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Russian Federation and the United Nations Development Program, signed by the parties on 17 November 1993. The host country-implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

166. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing agency and its personnel and property, and of UNDP's property in the implementing agency's custody, rests with the implementing agency.

167. The implementing agency shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

b) assume all risks and liabilities related to the implementing agency's security, and the full implementation of the security plan.

168. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

169. The implementing agency agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

170. The UNDP authorized official can effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

a. Revision of, or addition to, any of the annexes to the Project Document;
b. Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
c. Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and,
d. Inclusion of additional annexes and attachments only as set out here in this Project Document.

8. ANNEXES

Annex A: GEF-4 Tracking Tool for GEF Biodiversity Focal Area Strategic Objective Two: Mainstreaming Biodiversity Conservation in Production Landscapes /Seascapes and Sectors

I. Project General Information

1. Project Name: Mainstreaming biodiversity conservation into Russia's energy sector policies and operations
2. Project Type (MSP or FSP): FSP
3. Project ID (GEF): 3909
4. Project ID (IA): 4241
5. Implementing Agency: UNDP
6. Country: Russian Federation (RF)
7. Name of reviewers completing tracking tool and completion dates:

	Name	Title	Agency	Completion date
Work Program Inclusion	Igor Ryzhov	PPG Consultant	Russian Independent ecological rating agency, independent consultant	December 2010
	Andrey Subbotin	Director	All-Russia Research Institute for Nature Protection (MNRE)	December 2010
	Andrey Gusev	Director	Nenetsky State Nature Reserve	December 2010
	Lena Volkova		State Enterprise "Regional information and analytical centre for ecological monitoring" of the Sakha (Yakutia) Republic	December 2010
	Dmitry Petelin		Sakhalin Energy Investment Company	December 2010
	Staff		Astrakhan State Biosphere Nature Reserve	December 2010
Project Mid-term				
Final Evaluation/project completion				

8. Project duration: Planned__5___ years Actual_____ years
9. Lead Project Executing Agency: Ministry of Natural Resources and Environment
10. GEF Strategic Program:
    - ✓ Strengthening the policy and regulatory framework for mainstreaming biodiversity (SP 4)
    - ☐ Fostering markets for biodiversity goods and services (SP 5)

11. Production sectors and/or ecosystem services directly targeted by project: Please identify the main production sectors involved in the project. Please put "P" for sectors that are primarily and directly targeted by the project, and "S" for those that are secondary or incidentally affected by the project.
    Agriculture_____
    Fisheries_____
    Forestry_____
    Tourism_____
    Coal Mining ____P__
    Oil ___P_____
    Transportation_____
    Other (please specify) __Hydropower (P)_

II. Project Landscape/Seascape Coverage

12. What is the extent (in hectares) of the landscape or seascape where the project will directly or indirectly contribute to biodiversity conservation or sustainable use of its components?

Area Coverage (ha)	Total hectares		
	Targeted at project start	Achieved by mid-term Evaluation	Achieved by Final Evaluation

Landscape area directly covered by the project	80,985	[to be filled-in at mid term evaluation]	[to be filled-in at final evaluation]
Landscape area indirectly covered by the project	617,600	[to be filled-in at mid term evaluation]	[to be filled-in at final evaluation]

Explanation for indirect coverage numbers:

Sector	Pilot region	Indirect coverage	Explanation: Indirect coverage numbers are an estimate of areas within the country where threats similar to those at the demonstration area occur making these areas suitable for potential replication of the pilot and its lessons
Oil	NAO	380,000	80 000 km2 of the coastal area and shelf of the Pechora sea (south-eastern part of the Barents Sea) where oil, gas and gas-condensate are explored, as well as 300 000 km2 in the north of the Western Siberia used in the same way.
Oil	Sakhalin	1,600	1 600 km2 area within the Sea of Okhotsk and the Bering Sea which are promising in terms of oil & gas exploration activities
Oil	North Caspian	200,000	200 000 km2 of the sea area of the Northern Caspian promising in terms of hydrocarbons exploration and extraction
Hydro	Yakutia	4,000	4 000 km2 (south Siberian river values potentially suitable for hydropower construction)
Coal	Khakassia/ Kemerovo	30,000	30 000 km2 - total area of coal opencasts in the steppe depressions of Khakassia, Buryatia and Kemerovo Regions
	TOTAL	615,600	

13. Are there Protected Areas within the landscape/seascape covered by the project? If so, names these PAs, their IUCN or national PA category, and their extent in hectares

Name of Protected Areas	IUCN and/or national category of PA	Extent in hectares of PA
Nenetsky (NAO)	State nature reserve	313 400 ha, (included 181 900 ha – water area)
Nenetsky (NAO) (same name as above)	Federal zakaznik	308 500 ha
Astrakhansky (Northern Caspian)	State nature reserve	67 917 ha, (included 11 298 ha – water area)
Tryokhozerka (Hakasia)	Local ornithology reserve	100 ha
Karakan ridge (Kemerovo region)	Local botanic reserve (intended)	100 ha
Olekminsky State Nature Reserve	Federal strict nature reserve	847 100 ha
Nimnyr (Southern Yakutia)	Local reserve	487 000 ha
Severny (Sakhalin Isl.)	Local reserve	103 266 ha (water area)
Tundrovy (Sakhalin Isl.)	Local reserve	189 895 ha

14. Within the landscape/seascape covered by the project, is the project implementing payment for environmental service schemes?

No, the project will not be implementing such a scheme.

III. Management Practices Applied

15. Within the scope and objectives of the project, please identify in the table below the management practices employed by project beneficiaries that integrate biodiversity considerations and the area of coverage of these management practices. Please also note if a certification system is being applied and identify the certification system being used. Note: this could range from farmers applying organic agricultural practices, forest management agencies managing forests per Forest Stewardship Council (FSC) guidelines or other forest certification schemes, artisanal fisherfolk practicing sustainable fisheries management, or industries satisfying other similar agreed international standards, etc. An example is provided in the table below

Specific management practices that integrate BD	Name of certification system being used (insert NA if no certification system is being applied)	Area of coverage foreseen at start of project	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
OIL: Pilot oil fields in NAO, Sakhalin and the North Caspian will change production practices to reduce impact on biodiversity through the following types of measures: Redesign (adjustments to the original planning) of hydrotechnical facilities · Liquidation of wells · Technical and biological recultivation of degraded areas of land, recovery of accumulated wastes, clean up of the territory from garbage and scrap metals, etc · Environmental and geological monitoring for the exploration of Kumzhinskoye and Korovinskoye deposits · Development of relevant sections of project documentation · Collection and analysis of samples for radionuclide content in hydrocarbonates During preparation and exploitation of drilling planes the "zero discharge" practice will be in place, meaning that the wastes are collected in sealed containers and removed to the shore for utilisation. Other negative impact is minimised through applying environmentally safe water intake methods, using secondary coolant circuit, cluster field development, as well as engineering solutions that reduce emissions into the atmosphere and noise. · Viability of establishment of special construction around platforms allowing anchorage for aquatic life and spawning for the Round goby will be assessed. · Emergency oil spills preparedness and response system will be improved, both for summer and winter (ice covered sea) period. · A programme for on-site environmental monitoring for the key aquatic species will be further developed to assess impact of exploration and exploitation of offshore oil&gas deposits on the ecosystems and aquatic bioresources. · Continue damage compensation practice for sturgeon population through hatchery support.	Measures will be in-line with international oil industry standards such as those developed by the Energy and Biodiversity Initiative	59,200 square kilometers		

Specific management practices that integrate BD	Name of certification system being used (insert NA if no certification system is being applied)	Area of coverage foreseen at start of project	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
HYDROPOWER: Pilot large hydropower project in Southern Yakutia will change production practices to reduce impact on biodiversity through the following types of measures: strict regulation of construction works, including necessary clarifications for management and staff of construction companies on the priority accorded to avoiding damage to unique natural areas; reclamation of areas destroyed during construction activities; preparation of the site (the bottom of future dam reservoir) with clear cutting of forests to avoid future problems with water quality in the reservoir as a result of forest residue decay; bird protection measures along power lines; enhanced support to protected areas in the Timpton River basin, namely "Khatymi" and "Nimnir" zakazniks, so that affected animal and bird species have a reliable refuge, which can help restore population numbers.	Measures will be in-line with international hydropower industry standards such as those developed by International Hydroelectric Association and Coface	20,260 square kilometers		
COAL: Pilot coal fields in Kemorovo and Khakassia will change production practices to reduce impact on biodiversity through the following types of measures: new recultivation methods will be tested such as forest/ meadow plantation/ seeding with a scientifically-proven selection of species composition to be as close to the natural conditions as possible; assessment of the effectiveness of the current quarry waste water treatment facilities and the negative impact of discharge on biodiversity (Khakassia); biodiversity risk and damage assessment for the water areas located in the vicinity of waste water discharge objects, and environmental and economic assessment of the effectiveness of the current waste water treatment facilities (Kemorovo); demonstrating improved water treatment technology; compensational mechanism to conserve unique rocky steppe ecosystems in the Karakanskaya Ridge.	Measures will be in-line with international coal industry standards such as those developed by the International Council on Mining and Metals	1,525 square kilometers		

IV. Market Transformation

16. For those projects that have identified market transformation as a project objective, please describe the project's ability to integrate biodiversity considerations into the mainstream economy by measuring the market changes to which the project contributed.

Not applicable.

V. Policy and Regulatory frameworks

For those projects that have identified addressing policy, legislation, regulations, and their implementation as project objectives, please complete the following series of questions: 17a, 17b, 17c.

17. (a) Please complete this table **at CEO endorsement** for each sector that is a primary or a secondary focus of the project. Please answer YES or NO to each statement under the sectors that are a focus of the project.

Statement: Please answer YES or NO for each sector that is a focus of the project.	Oil	Coal	Hydropower
Biodiversity considerations are mentioned in sector policy	Yes	Yes	Yes
Biodiversity considerations are mentioned in sector policy through specific legislation	No	No	No
Regulations are in place to implement the legislation	No	No	No
The regulations are under implementation	No	No	No
The implementation of regulations is enforced	No	No	No
Enforcement of regulations is monitored	No	No	No

17. (b) Please complete this table **at the project mid-term** for each sector that is a primary or a secondary focus of the project.

Statement: Please answer YES or NO for each sector that is a focus of the project.	Oil	Coal	Hydropower
Biodiversity considerations are mentioned in sector policy			
Biodiversity considerations are mentioned in sector policy through specific legislation			
Regulations are in place to implement the legislation			
The regulations are under implementation			
The implementation of regulations is enforced			
Enforcement of regulations is monitored			

17. (c) Please complete this table **at project closure** for each sector that is a primary or a secondary focus of the project.

Statement: Please answer YES or NO for each sector that is a focus of the project.	Oil	Coal	Hydropower
Biodiversity considerations are mentioned in sector policy			
Biodiversity considerations are mentioned in sector policy through specific legislation			
Regulations are in place to implement the legislation			
The regulations are under implementation			
The implementation of regulations is enforced			
Enforcement of regulations is monitored			

All projects please complete question 17(d) at the project mid-term evaluation and at the final evaluation, if relevant:

17. (d) Within the scope and objectives of the project, has the private sector undertaken voluntary measures to incorporate biodiversity considerations in production? If yes, please provide brief explanation and specifically mention the sectors involved. An example of this could be a mining company minimizing the impacts on biodiversity by using low-impact exploration techniques and by developing plans for restoration of biodiversity after exploration as part of the site management plan.

_____
_____
_____
_____

VI. OTHER IMPACTS

18. Please briefly summarize other impacts that the project has had on mainstreaming biodiversity that have not been recorded above.

Pilot demonstrations related to the gas sector are not included to limit the already ambitious scope of the project and partly because gas sector impacts are smaller than oil sector impacts. The project's institutional and regulatory work (standards, methodologies, best practice compendium, training, etc.) will not focus on the gas sector or at main gas producing companies (Gasprom). That said, some of the oil deposits include some "gas factor" (a share of gas extracted from the well together with oil). Two deposits in the Pechora delta are dominated with gas condensate - these are liquid fractions of the very light oil, also with associated gas, behaving more as oil than as gas. However, while working with oil producing companies that also work with gas (Lukoil, Sakhalin energy, Shell) and while working on pilot projects located at mixed oil/ gas fields the project through demonstration activities will have an indirect effect on gas production as a side benefit.

Annex B: Description of Demonstration Areas of the Project (submitted as a separate file due to the large file size)

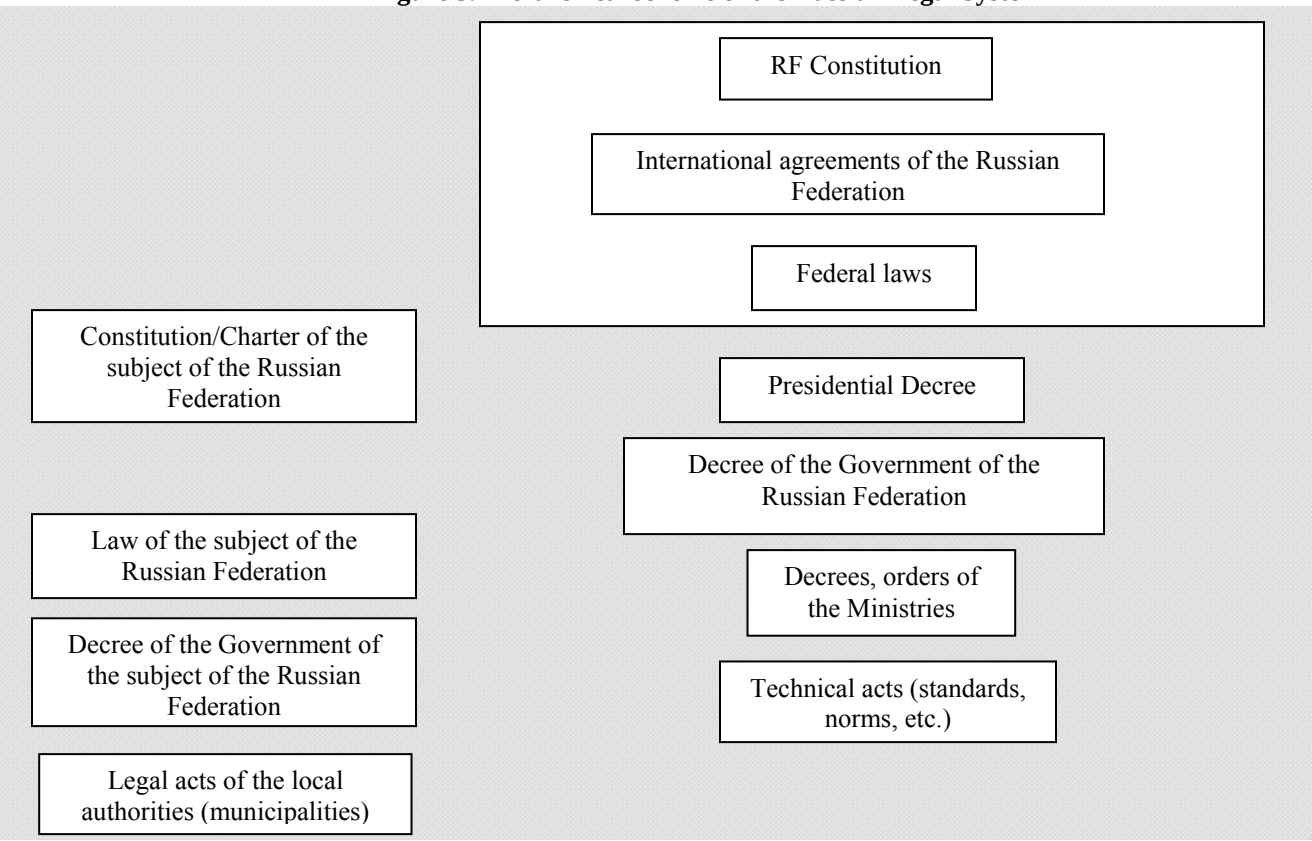
Annex C: Environmental Legislation in the Russian Federation

Since 1991 Russia has adopted a large number of environmental laws and regulations including those directly regulating biodiversity conservation and sustainable use. Since 1995, when Russia ratified the Convention on Biological Diversity, the term "**biological diversity**" was integrated into the national legal system. As of today, there are almost 100 different legal acts and regulations using this term (mostly in a very general sense) and many more regulating different aspects of biodiversity without using this term.

However, despite this, overall, the term is still not common in legal practice and in industrial environmental considerations. The key reason for that is the low priority given to the issue in comparison with "traditional pollution" issues. For this reason, it is still relevant to promote awareness on biodiversity among the regulatory, enforcement and industry communities.

The general hierarchy of the current Russian legal system is shown in the figure below. In this figure, legal acts are located in line with their legal power. Thus, according to the Constitution (Article 15), international agreements (properly ratified by Russia) have priority over federal laws and other sub-law regulations. Article 72 of the Constitution establishes that environmental protection is the joint responsibility of the federation and regions (subjects or legal entities of the federation). In practice, this means that every region can adopt its own regulations on environmental protection, including biodiversity conservation and sustainable use. Decrees and orders issued by federal ministries with power over the entire territory of Russia should be registered by the Ministry of Justice. Each lower level can not contradict with levels above. Technically, Presidential and Russian Federation (RF) Government decrees have higher power than laws of the regions.

Figure 5. Hierarchical scheme of the Russian Legal System



The current system of federal environmental legislation (at the level of laws) is presented in the table below. The overall legal system reflects the organization of Russia as a federation. Environmental legislation is traditionally (since Soviet era) built on a sectoral (resource-based) principle, with some acts having cross-cutting importance. Some laws are subject or even region specific (e.g. regulating areas of special concern or conservation status).

Table 6. System of Federal Environmental Legislation (Federal Laws)

Issues	Federal Laws
Sectoral laws (natural resources)	
Land	Land Code, 25 October 2001 г. No. 136-ФЗ
	On State Cadastre of Real Estate, 24 July 2007 No. 221-ФЗ
	On Land Transfer from one land category to another, 21 December 2004 No. 172-ФЗ
	On Land Boundary Survey, 18 June 2001 No. 78-ФЗ
	On State Regulation of Agricultural Land Fertility, 16 July 1998 No. 101-ФЗ
	On Land Amelioration, 10 January 1996 No. 4-ФЗ
Wildlife	On Wildlife, 24 April 1995 No. 52-ФЗ
Forests	Forest Code, 4 December 2006 No. 200-ФЗ
Water	Water Code, 3 June 2006 No. 74-ФЗ
Subsoil	On Subsoil, 21 February 1992 No. 2395-1
Marine bioresources	On Fishery and Conservation of Marine Bioresources 20 December 2004 No. 166-ФЗ
	On Exclusive Economic Zone of the Russian Federation, 17 December 1998 N 191-ФЗ
	On Internal Sea Waters, territorial Sea and Adjacent Zone of the Russian Federation, 31 July 1998 г. No. 155-ФЗ
	On Continental Shelf of the Russian Federation, 30 November 1995 No. 187-ФЗ
Environmental protection laws	
General	On Environmental Protection, 10 January 2002 No. 7-ФЗ
Environmental assessment	On Ecological Expert review, 23 November 1995 No. 174-ФЗ
	City Planning Code, 29 December 2004 No. 190-ФЗ
Wastes	On Industrial and Consumption Wastes, 24 June 1998 No. 89-ФЗ
Areas of special concern	On Specially Protected Natural Areas, 14 March 1995 No. 33-ФЗ
	On Natural Medical Resources, Therapeutic Areas and Resorts, 23 February 1995 No. 26-ФЗ
	On Territories of Traditional Use of Indigenous People of the North and Far East of the Russian Federation, 7 May 2001 No. 49-ФЗ
	On Lake Baikal Protection, 1 May 1999 No. 94-ФЗ
	On Cultural Heritage, 25 June 2002 No. 73-ФЗ
Atmosphere protection	On Ban for Production and Transactions of Leaded Gasoline in the Russian Federation, 22 March 2003 No. 34-ФЗ
	On Atmospheric Air Protection, 4 May 1999 No. 96-ФЗ
Other laws regulating some aspects of environmental conservation	
Liabilities	Administrative Code, 30 December 2001 No.195-ФЗ
	Criminal Code, 13 June 1996 No.63-ФЗ
Funding	Tax Code
	On federal budget for 2010 and planning period of 2011 and 2012, 2 December 2009. No.308-ФЗ
Energy efficiency	On energy savings and increase of energy efficiency and amendments to some legal acts of the Russian federation, 23 November 2009 No.261-ФЗ
Biosafety	On state regulation of genetic engineering, 5 July 1996 No. 86-ФЗ
	On quarantine of plants, 15 July 2000 No. 99-ФЗ
	On safe operations with pesticides and agrochemicals, 19 July 1997 No.109-ФЗ
Indigenous people	On guaranties for the rights of small indigenous nationalities of the Russian Federation, 30 April 1999 No.82-ФЗ
	On general principles of organization of indigenous communities of small nationalities of the North, Siberia and Far East of the Russian Federation, 20 July 2000, No.104-ФЗ
Industrial safety	On safety of hydrotechnical installations, 21 July 1997 No. 117-ФЗ
	On industrial safety of hazardous industrial facilities, 21 July 1997 No. 116-ФЗ
Other	On protection of people and territories from natural calamities and technological emergency situations, 21 December 1994 No. 68-ФЗ
	On population sanitary and epidemiological welfare, 30 марта 1999 г. N 52-ФЗ

In addition to the above listed laws, there are two key **policy documents**, which are supposed to provide general background for biodiversity conservation, even though they have no legally binding power. These are:

- National Biodiversity Conservation Strategy: The Strategy determines key areas (topics and ecosystems) for priority conservation and includes some mechanisms. It was developed under a GEF project in line with the CBD requirements.
- Ecological Doctrine of the Russian Federation (adopted by the regulation of the RF Government on 31 August 2002 No. 1225-p). Biodiversity is recognized as a condition for human existence and biodiversity conservation as one of the key goals of the state environmental policy. Biodiversity is considered as a specific component of the national environmental policy – Conservation and Restoration of Natural Environment. It has 5 key priorities: i)

conservation and restoration of ecosystems, ii) conservation and restoration of rare and endangered species, iii) development of protected areas, iv) preservation of ecosystems integrity and prevention of fragmentation by hydrotechnical, transportation and energy linear infrastructure, and v) conservation and restoration of biological and landscape diversity on anthropogenically modified areas.

The Russian legal system is predominantly built on a framework of federal laws (with limited number of norms with direct effect) and supplemented by a very significant set of sub-laws at the level of central government and sectoral ministries. According to the Constitution, environmental issues are subject to joint authority at the federal and regional level. Thus, each region is authorized to adopt relevant environmental regulations including regional laws (under condition of no contradiction with federal regulations). Every region of Russia has its own regulations which may significantly add to the federal norms based on regional specifics. This, *inter alia,* includes adoption of regional requirements for:

- reclamation
- protected areas
- organization of monitoring
- regulation of interactions with indigenous communities and traditional land use
- social and environmental compensations
- administrative liabilities

Thus, any initiatives to mainstream biodiversity through updating and upgrading the legislation should consider actions at the federal level and in the regions based on appropriate analysis. Biodiversity conservation requirements are directly included in some federal laws and declared as one of the priorities (especially legislation related to forests, wildlife, marine bioresources and protected areas). Biodiversity conservation is:

- recognized as an essential prerequisite for meeting needs of current and future generations and as an integral part of ecological security (Law on Environmental Protection);
- recognized as one of the principles of environmental protection (Law on Environmental Protection);
- declared as a principle of forest legislation (Forest Code); and
- declared as a principle of state policy on wastes (Law on Industrial and Consumption Wastes).

In most cases, legislation (especially on industrial and sectoral development) uses the more general term "environmental conservation" and considers biodiversity issues as part of it. For example, the subsoil law does not use biodiversity terminology. The key general environmental requirements for each and every sector of industry, including the energy sector, are established in the Federal Law on Environmental Protection. Specific requirements of each sector are established in sectoral regulations.

In terms of indicators of the state of biodiversity, there are no comprehensive indicators incorporated into state statistics. Information gathering in state statistics is limited to game species and coverage of protected areas. Some biodiversity indicators are used in forestry (Criteria and indicators of sustainable forestry in the Russian Federation) and fishery.

The liability system in the area of biodiversity is based on compensation to the resource base and not to biodiversity:

- calculation of damage to wildlife and habitats (Methodology for assessment of damage to and calculation of losses due to distraction of wildlife specimens and their habitats, 28 April 2000);
- calculation of damage to forestry (On procedure and amount of financial liability for damage to forestry);
- calculation of damage for fisheries (tariffs for calculation of amount for payment for damage to aquatic bioresources).

Both the Criminal Code (chapter 26 on Ecological Crimes) and Administrative Code (chapter 8) contain a number of provisions for environmental violations including biodiversity related violations. In most cases punishment for "biodiversity related" offences is less than for "traditional" environmental, resource and pollution issues.

The overall analysis of Russian legislation in terms of biodiversity conservation, points to the following conclusions:

- biodiversity related legislation in Russia is comprised of federal and regional acts reflecting Constitutional provisions for joint power;
- biodiversity conservation is declared as a priority and principle of state environmental policy in a number of regulations and policy documents;
- biodiversity as a legal term is still not common in sectoral legislation related to industrial development as well as in liability, but was introduced into wildlife, forest, fishery and protected area regulations;
- biodiversity is predominantly considered within the general term “environment” and as an essential part of “environmental conservation”;
- biodiversity is an obligatory part of EIA content;
- there are no indicators and reflection of biodiversity in state statistics; and
- the calculation of damage to biodiversity is based on natural resource loss principles.

Annex D: Environmental Assessment and Territorial Planning in Russia

This annex summarizes existing laws, procedures and institutional responsibilities related to environmental assessment and territorial planning within the Russian Federation. Both environmental assessment and territorial planning have a bearing on the objective of the project which is to mainstream biodiversity conservation priorities into Russian energy sector development policies and energy production sectors.

I. Environmental Assessment in Russia

National procedures for assessing environmental impacts of economic projects, or any other activity that may have direct or indirect impacts on the environment, include the following:

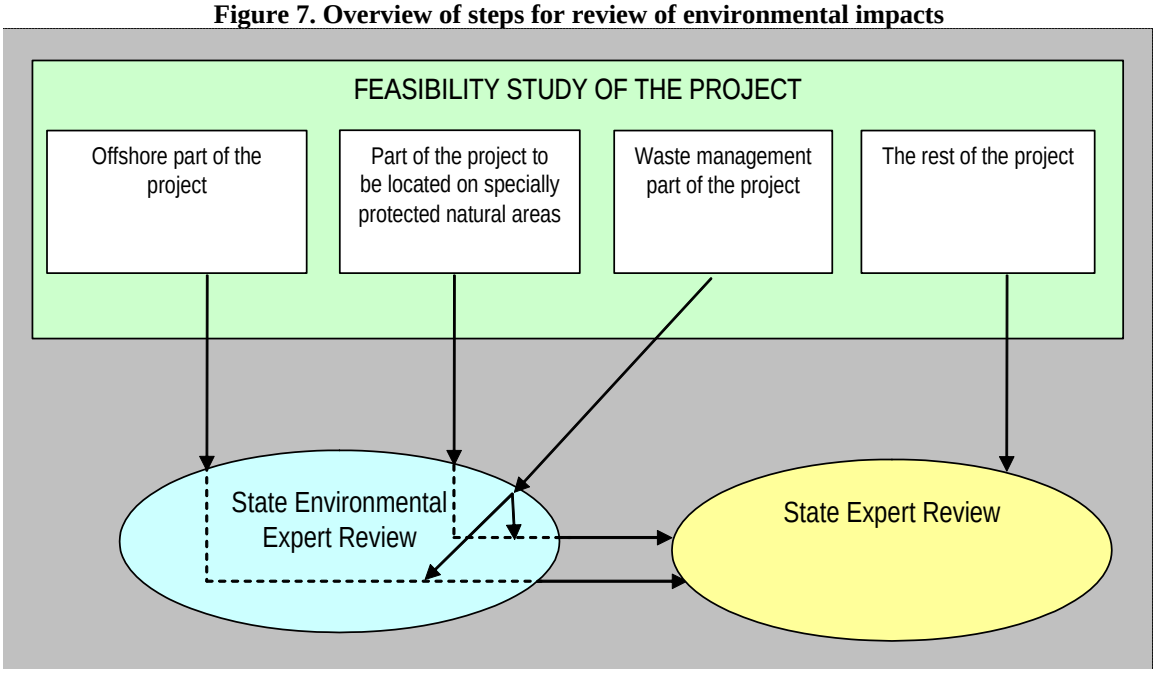
1. Environmental impact assessment (EIA)
2. State Expert Review

and/ or

3. State Environmental Expert Review.

All such projects will be subject to an EIA, followed by a State Expert Review. Some projects (or parts of projects) will be subject to an additional review – the State Environmental Expert Review, in accordance with the approved lists of projects subject to the aforesaid reviews. The sections below describe each of these three elements in further detail. The figure below presents an overview of the scheme for review of environmental impacts for a hypothetical project.

Figure 7. Overview of steps for review of environmental impacts



1.1. Environmental impact assessment

The Federal Law "On Environmental Protection" sets forth in Article 32 that an environmental impact assessment (EIA) is conducted for a planned business or any other activity that may have direct or indirect impact on the environment, regardless of the form of organization or legal ownership of the business or other entity. The assessment of environmental impact is conducted in accordance with the "Statute on impact assessment of a planned business or another activity on environment in the Russian Federation"[18]. The requirements for the type of materials to be produced under an environmental impact assessment (hereinafter EIA materials) are established by federal government authorities performing state management functions in the sphere of environmental protection (as stated in the federal law "On Environmental Protection").

[18] This Statute was approved by the Order of the Russian Federation State Committee for Environmental Protection (Goscomecologiya) on May 16, 2000 (Number 372), and registered by the Russian Federation Ministry of Justice on July 4, 2000 (Registration Number 2302).

1.2. State Expert Review

Requirements for design documentation of any capital construction objects are set forth by the Russian Federation Town-Planning Code Number 190-FZ, dated December 29, 2004. In accordance with the Town-Planning Code, the project documentation for capital construction objects, except for design documentation of linear facilities (such as pipelines and power lines)[19], should include a special section called "The list of environmental protection measures" (Clause 12, Article 48). Starting on 1 July 2008, the outline and content of design documents is regulated by the "Statute on design documentation outline and requirements to content thereof", approved by Government Resolution Number 87 of the Russian Federation dated 16.02.2008. Resolution 87 states that the design documents filed for the State Expert Review shall include the results of environmental impact assessment (Clause 25 and Clause 40).

Statute Number 145 on "Arranging and Conducting the State Expert Review of Design Documentation and Engineering Survey Reports", approved by a government resolution on 5 March 2007, specifies, inter alia, the following grounds for refusal to accept the design documentation filed for the State Expert Review:

- the design documentation lacks sections required by the Town-Planning Code, including the section listing environmental protection measures for non-linear objects
- the design documentation does not meet the requirements to content established by the RF Government

The procedure for the State Expert Review is as follows. The organization performing the State Expert Review (which are specially designated state body at the federal level for projects at the federal level and state bodies designated by regional governments for all other projects) shall examine the documentation within 3 working days upon receipt thereof from the applicant. Clause 29 of Resolution 145 establishes that the duration of the state examination review should not exceed three months. Clause 38 of Resolution 145 (as amended on 16.02.2008) states that design documentation shall not be approved by the developer or the owner if the conclusion of the state expert review was unfavorable.

Objects subject to the State Expert Review include (i) extra-hazardous and technically complex objects, among which are included sea ports, except for specialized sea ports providing services to sports vessels and pleasure boats; and (ii) objects that are planned for construction, reconstruction and (or) major overhaul within the territory of two or more legislative entities of the Russian Federation.

1.3. State Environmental Expert Review

In accordance with existing laws, design documents of some projects (or parts of projects) are subject to a State Environmental Expert Review, in addition to the State Expert Review. The State Environmental Expert Review differs from the State Expert Review in terms of the depth of coverage of environmental aspects. The table below highlights these differences.

The mandatory principle requiring a State Environmental Expert Review for any business or other activity that may have a negative impact on the environment, or present a threat to life, health or property of people was deleted (with effect from 1 January 2007) from the federal law "On environmental protection". The wording that replaced it is as follows "mandatory inspection of design and other documents to be carried out pursuant to the Russian Federation laws". Since then, for the majority of projects, the amended Town-planning Code contained the provision that only a State Expert Review was to be carried out for design documents and engineering survey reports. Beginning on 1 January 2007, the State Environmental Expert Review has been conducted only for a small range of entities. For example, the design documents for onshore capital construction are no longer subject to the State Environmental Expert Review, unless the objects are to be located in specially protected natural areas.

The State Environmental Expert Review is required in the following cases:

- Design documentation of objects subject to State Environmental Expert Review specified in the Federal Law Nr 187-FZ "On the Russian Federation Continental Shelf" (dated 30 November 30 1995), Federal Law Nr 191- FZ "On the Russian Federation exclusive economic zone" (dated 17 December 1998), Federal Law Nr 155-FZ "On the Russian federation inland sea waters, territorial sea and contiguous zone" (dated 31 July 1998)

[19] The required outline and content of design documentation for linear object is also defined by the government of the Russian Federation and may be found among the new technical regulations, standards or rules.

- Design documentation of objects which are planned for construction, reconstruction or major overhaul on federal specially protected natural areas
- Design documentation of hazardous, technically complex or unique objects which are planned for construction, reconstruction or major overhaul on regional and local specially protected natural areas, in cases when construction, reconstruction or major overhaul of such objects is allowed by the Russian Federation laws and the laws of the RF legislative entities
- Design documentation of the objects dealing with storing or processing of waste of hazard classes I - V; (Article 11 FZ "On environmental expert review" dd. 23.11.1995 Nr 174-FZ as amended 24.07.2008).

Table 8. Coverage of Environmental Aspects in State Reviews of Design Documentation

Environmental Aspect	Coverage under State Expert Review	Coverage under State Environmental Expert Review
Environmental Impact Assessment (EIA)	EIA results	EIA materials
Design documentation	Design and engineering survey reports are reviewed	Design and engineering survey reports are reviewed
Public opinion materials	Not required	Reviewed
Public discussions of design materials	Not conducted	(i) observers invited (ii) public environmental expert review
Conclusions/ approvals of specially authorized bodies	Not required	Compulsory
Aim of documentation review	Assess compliance with (i) engineering survey reports, and (ii) technical regulations, including: - sanitation and epidemiological - ecological - state protection of site of cultural heritage - fire, industrial, nuclear, radiation and other safety	Determine compliance with environmental regulations, set forth by technical regulations and environmental protection laws with the aim to prevent negative impact on environment.
Complexity and level of detail of Conclusions	Conclusions of the State Expert Review contain: (a) general provisions (b) grounds for engineering surveys, development of project documentation (c) description of reviewed documentation (materials) (d) conclusions upon review	Conclusions of the State Environmental Expert Review contain: (a) Key parameters of the project under review such as location, characteristics, characteristics of produce, demand in resources, characteristic of nature in the area, list of possible restrictions to business operation, estimated impact on environment, planned environmental protection measures and effectiveness thereof, loss connected with implementation of the planned solutions (b) Expert review by Sections (issues) of the reviewed materials: - compliance of the documents/documentation - thoroughness of identified scale of the forecast environmental impact - sufficiency of envisaged environmental protection and ecological safety measures - other issues, if required

The procedure for arranging and conducting a State Environmental Expert Review is established by the Federal Law "On environmental expert review" and the "Procedure of state environmental expert review". In accordance with clause 7 of Article 11, FZ "On environmental expert review" (as amended 24.07.2008 Nr 162-FZ), State Environmental Expert Review is based on the principle of compulsory state environmental expert review prior to any decisions concerning embodiment of the object of environmental expert review.

The Federal Law "On environmental expert review" contains a special requirement to the content of documentation submitted for State Environmental Expert Review namely, that materials on environmental impact assessment of the business or any other operations subject to state environmental expert review must be made available.

The State Environmental Expert Review is conducted in accordance with the Administrative Procedure of the Federal Service of Environmental, Technological and Nuclear Supervision and the Federal Service for Supervision over

Natural Resource Management concerning performance of the function of arranging and conducting the State Environmental Expert Review (the Russian Federation Ministry of Justice registration number 11343, dated 14.03.2008).

Pursuant to Clause 13 of the Administrative Procedure, the term of the State Environmental Expert Review is defined based on labor intensity of the expert work given the volume of filed materials, natural specifics of the territory, environmental situation in the proposed activity area and specifics of impact of the planned activity on environment. The aforesaid term is established to be:

- up to 30 days for simple objects subject to State Environmental Expert Review
- up to 60 days for medium complexity objects subject to State Environmental Expert Review
- from 60 to 120 days for complex objects subject to State Environmental Expert Review

To date, the procedure for transfer of the materials during the State Expert Review for further State Environmental Expert Review has not been defined by any regulation.

Pursuant to Clause 12 of the Federal Service of Environmental, Technological and Nuclear Supervision Administrative Procedure, a State Environmental Expert Review, including additional ones if deemed necessary, is conducted on condition of (i) compliance of the form and content of materials submitted by the requester with the requirement of the Federal Law "On environmental expert review"; (ii) compliance with the established procedure for State Environmental Expert Review; and (iii) availability of the following documents among the submitted ones:

- Documentation subject to the state environmental expert review containing information on environmental impact assessment of business or other operations subject to the state environmental expert review (i.e., when design documentation is filed for the State Environmental Expert Review, the package of documentation must contain Environmental Impact Assessment materials, compliant with the existing "Statute on assessment of impact of business or other operations on environment in the Russian Federation" (2000)
- Seals of approval and (or) written approvals by federal supervision and control agencies and local government bodies, obtained as per the procedure established by Russian Federation laws
- Conclusions of federal government agencies from the State Environmental Expert Review, if such review was conducted by the said agencies, and conclusions of the public environmental expert review[20], if conducted
- Materials of discussions concerning the object of State Environmental Expert Review with general public and public organizations (associations) formed by local government bodies

II. Regional Territorial Planning in Russia

Town-planning laws in the Russian Federation require that territorial zoning (planning) be conducted. The laws also require that the future location of certain type of objects be indicated so that this can serve as a basis for future planning, and make it possible to study and assess the acceptability of placing a certain object in a specific territory. Such an approach is convenient at the stage of macroeconomic planning. But it leaves out variability of detailed environmental restrictions to be taken into account in specific territories.

One of the tasks of territorial planning is to ensure effective conservation of natural complexes and sites. From the viewpoint of environmental protection, territorial planning should take into account the following:

- plan and implement measures for conservation of habitats, breeding, feeding and resting sites, and migration paths of fauna, as well as for ensuring that protective zones[21] are kept intact (during siting, designing and construction of residential places, enterprises, buildings and other facilities; improvement of existing and introduction of new technologies; reclamation of wildlands, marshlands, coastal and brushland; land rehabilitation; use of forests; geological exploration; extraction of commercial minerals; defining places for livestock grazing and driftways; developing tourist routes and arranging sites of public recreation; and carrying out other business operations)

[20] According to the law, some NGOs have the right to conduct their own review of the project, independent of the state body conducting the review. Results of this review have no legal power but may be presented to state authorities and used in public campaigns.

[21] Russia has several categories of protective zones; "natural protected areas" are but one type of protective zone.

- develop and implement measures to ensure conservation of fauna migration paths, sites of permanent concentration, including breeding and wintering grounds (during siting, designing and constructing of airports, railways, highways, pipelines and other traffic arteries, power transmission and communication lines, channels, dams and other hydraulic engineering installations)

Territorial planning schemes of the Russian Federation legislative entities **may include** maps (schemes) of the following:

- planned development and location of specially protected natural areas of regional significance
- changed agricultural land boundaries and cultivated land boundaries among the agricultural land
- planned location of capital construction objects of regional significance (power, linear, transport, etc.)

The structure and procedure for drafting territorial planning schemes of the Russian Federation legislative entities[22], as well as the procedure for amendment of such schemes, is established by the laws of the Russian Federation legislative entities. Before the adoption of draft Russian Federation territorial planning schemes, the schemes are subject to compulsory approval by the involved executive authorities of the Russian Federation legislative entities, as per the procedure established by Article 12 of the Town-Planning Code.

The draft territorial planning scheme of a Russian Federation legislative entity is also subject to approval by an authorized federal government body in the event that the proposals contained therein envisage any change of boundaries (existing or planned) to the following types of land, in accordance with the Russian Federation territorial planning documents:

- forest land
- land strategic for defense and security
- land of specially protected natural areas of federal significance
- land areas owned by the Russian Federation
- territories of cultural heritage sites
- zones for planned location of capital construction objects of federal significance

Another group of issues subject to approval by federal government bodies are location of regional significance capital construction objects that **may have an adverse impact on environment** on the aforesaid lands, territories and land plots.

The right-holders of land plots and capital construction objects have the right to challenge the territorial planning scheme of a Russian Federation legislative entity in court, if their rights and lawful interests are being or may be infringed as a consequence of the approval of the scheme.

In addition, when protective zones are allotted with restrictions concerning business operations thereon, the owner or tenant of the areas is eligible for compensation in accordance with Russian Federation laws and the laws of Russian Federation legislative entities.

III. Division and Reassignment of Responsibilities for Natural Resources Management in Russia

In Russia a specific feature of the administration system is joint competence of Federal and Legislative Entity authorities in the sphere of natural resources management, wherein some of the federal powers have been transferred to legislative entities and local governments, including those in the sphere of biodiversity conservation (fauna primarily). As a rule, the mechanisms for revoking, temporary suspension of powers and adopted documents, and other actions are not regulated by laws.

3.1. Responsibilities for environmental assessment

State Environmental Expert Review (Federal level): The Russian Federation Government Resolution Number 404 "On the Russian Federation Ministry of Natural Resources and Environment" (dated 29.05.2008) gives the authority for

[22] Russian regions (provinces)

conducting the State Environmental Expert Review to the Federal Service of Environmental, Technological and Nuclear Supervision. No new (amended) procedure for State Environmental Expert Review has been established yet.

State Environmental Expert Review (Regional level): At the regional level, in accordance with the Russian Federation Laws and Laws of the Russian Federation legislative entities (enacted by Federal Law Number 75-FZ, dated 16.05.2008), the objects subject to regional level State Environmental Expert Review include design documents of objects planned for construction, reconstruction, major overhaul on regionally and locally significant specially protected natural areas, except for design documents of objects listed in sub-clause 7.1, Article 11 of the Federal Law. The State Environmental Expert Review of regional level objects is conducted by the government authorities of the Russian Federation legislative entities as per the procedure established by the Federal Law "On environmental expert review" and other Russian Federation regulations and standards.

State Expert Review (federal level): At the federal level, SER is conducted by Glavgosexpertiza – a special state federal authority under the Ministry of Regional Development. It covers only the following types of projects:

- On the territory of two or more regions;
- Diplomatic missions and representatives offices of Russia abroad;
- On continental shelf, territorial sea and in exclusive economic zone;
- Military and state security objects;
- Automobile roads of federal importance;
- Maintenance and reconstruction of cultural heritage of federal importance.

State Expert Review (regional level): At the regional level, SER is conducted by a body specially designated by the government of the each region.

3.2. Responsibilities for territorial planning

The powers of government authorities of the Russian Federation legislative entities in the sphere of town-planning include, inter alia:

1. drafting and approval of territorial planning documents for the RF legislative entities
2. approval of territorial planning documentation for siting capital construction objects of regional significance in cases envisaged by the Town Planning Code
3. approval of regional town-planning rules and standards

The powers of local governments of towns and villages in the sphere of town-planning include:

1. drafting and approval of territorial planning documents for the towns and villages
2. approval of local town-planning rules and standards for the towns and villages
3. approval of rules of land use and construction in town and villages
4. approval of territorial planning documents drafted on the basis of the town and village territorial planning documents, except for cases stipulated in the Code
5. issue of permits for construction, permits for commissioning of objects constructed, reconstructed and overhauled within the town/ village territory
6. decisions on development of built-up lands

The powers of local governments of municipal districts in the sphere of town-planning include:

1. drafting and approval of territorial planning documents for the municipal districts
2. approval of local town-planning rules and standards for inter-settlement territories
3. approval of rules of land use and construction in relevant inter-settlement territories
4. approval of territorial planning documents drafted on the basis of the municipal district territorial planning documents, except for cases stipulated in the Code
5. issue of permits for construction, permits for commissioning of objects constructed, reconstructed and overhauled within the inter-settlement territories
6. maintaining information systems to support town-planning in the municipal district territories

3.3. Responsibilities for conservation and use of wildlife and aquatic bioresources

The powers of government authorities of the Russian Federation legislative entities in the sphere of conservation and use of wildlife include:

1. adoption of laws and other regulations and standards of the Russian Federation legislative entities regulating protection and use of wildlife and habitats; and control over the execution of the adopted legislation
2. establishing and maintenance of the Russian Federation legislative entity Red List
3. development and implementation of regional programmes on protection and rehabilitation of wildlife and habitats
4. participation in implementation of the Russian Federation international agreements in the sphere of wildlife use and protection, following the procedure approved by the federal government, fulfilling obligations of the Russian Federation under the given agreements

The Russian Federation delegates to the government authorities of Russian Federation legislative entities the following powers concerning protection and use of:

1. Wildlife:

- Arranging and implementing protection and rehabilitation of wildlife, except for wildlife on the specially protected natural areas of federal significance
- Coordination with the federal government agency responsible for policy development and regulation in the sphere of protection and use of wildlife and habitats in order to establish rates (limits) for hunting wildlife huntable species, except for wildlife on specially protected natural areas of federal significance
- Regulating wildlife population, except for wildlife on specially protected natural areas of federal significance, as per the procedure established by the federal government agencies responsible for policy development and regulation in the sphere of protection and use of wildlife and habitats
- Imposing, in the Russian Federation legislative entity, limits and restrictions concerning wildlife use for the purpose of protection and rehabilitation thereof, except for wildlife on specially protected natural areas of federal significance, upon approval of the federal authorities responsible for control and supervision in the sphere of protection, use and rehabilitation of wildlife and habitats
- State recording of wildlife population, state monitoring and state cadastre of wildlife in the Russian Federation legislative entity, except for wildlife on specially protected natural areas of federal significance, and subsequently submitting the aforesaid data to federal authorities responsible for control and supervision in the sphere of protection, use and rehabilitation of wildlife and habitats
- Issuing licenses (apart from administrative ones) and permits for use of wildlife, except for wildlife on specially protected natural areas of federal significance, and the Russian Federation Red List species
- Issuing permits for keeping and breeding wildlife in semi-natural conditions and artificial habitats (except for the Russian Federation Red List species), and apart from permits for keeping and breeding wildlife in semi-natural conditions and artificial habitats on specially protected natural areas of federal significance
- Control over the use of traps and live-traps
- Control over the market of wildlife yield
- Arranging and regulating commercial, sport and amateur fishery, fishery supporting traditional way of life and economic folkways of indigenous Arctic, Siberian and Far East ethnic minorities, except for resources of inland sea waters, territorial sea, continental shelf, the Russian Federation exclusive economic zone, specially protected natural areas of federal significance, as well as inland water aquatic bioresources recorded in the Russian Federation Red List, anadromous and catadromous fish, straddling fish stocks
- Arranging and regulation of coastal fishery (except for anadromous and catadromous fish and straddling fish stocks), including distribution of coastal fishing quotas and fishery plots

2. Aquatic bioresources:

- Aquatic bioresources in inland water bodies, except for specially protected natural areas of federal significance and border zones, as well as inland waters aquatic bioresources recorded in the Russian Federation Red List, anadromous and catadromous fish, straddling fish stocks and other aquatic animals as per schedule approved by the federal government agency responsible for policy development and regulation in the sphere of protection and use of wildlife and habitats;

- Implementation of measures for rehabilitation of wildlife and habitats disturbed due to elemental calamities and other reasons, except for wildlife and habitats on specially protected natural areas of federal significance
- State control and supervision over observance of laws in the sphere of protection and use of wildlife and habitats in the Russian Federation legislative entity, except for state control and supervision over observance of laws in the sphere of protection and use of wildlife and habitats on specially protected natural areas of federal significance

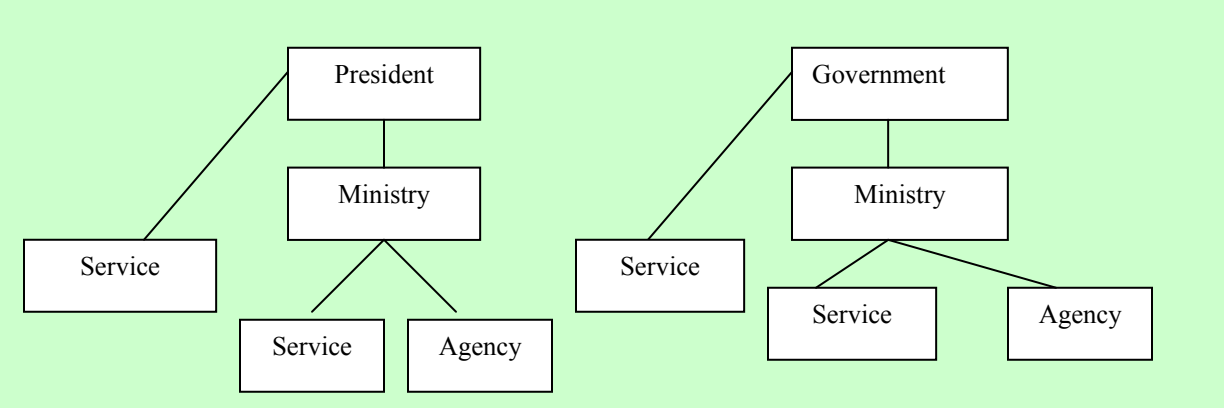
Some of the state powers in the sphere of wildlife use and protection may be delegated to local governments in accordance with the Russian Federation laws and the laws of the Russian Federation legislative entities. Such delegation of powers is accompanied by transfer of material and financial resources required for exercising the said powers. The state performs control over exercising of the delegated powers.

Annex E: Institutional Framework relevant for Biodiversity Mainstreaming in Russia's Energy Sector

I. Stakeholders at the Federal level

The current system of organization of executive power in Russia at the federal level includes the following structural elements. The figure below illustrates the relationship between the following government entities: Ministries (determine state policies and regulations); Services (provide for control); Agencies (provide for property management and delivery of state services).

Figure 9. Main Institutional Actors at the Federal Level



Military, security, and foreign affairs ministries report directly to the President. All key bodies dealing with resources and environmental issues report to the Government. Some Services may have a direct reporting line to the President or Government, instead of to a Ministry. The following bodies have different level of responsibilities for biodiversity issues and the energy sector:

Table 10. Institutional Responsibilities for Biodiversity and Energy Sector (Federal Level)

Issue	Main Institutional Actors
Subsoil and mineral resources	Ministry of Natural Resources and Ecology (MNRE) / Federal Subsoil Agency
Forests	Ministry of Agriculture / Federal Forestry Agency
Wildlife (game species, Red Data Book species)	MNRE/ Federal Service on Environmental Management Control
Marine and freshwater bioresources	Federal Fishery Agency
	Federal Security Service
Protected areas	Ministry of Natural Resources and Ecology
EIA	Ministry of Natural Resources and Ecology
	Ministry of Regional Development
State Environmental Expert Review	MNRE/ Federal Service on Environmental, Technological and Nuclear Control
State Expert Review	Ministry of Regional Development
Energy resources	Ministry of Energy
Environmental pollution	MNRE/ Federal Service on Environmental, Technological and Nuclear Control
Indigenous communities	Ministry of Regional Development
Environmental monitoring	MNRE/ Federal Service on Hydrometeorology and Environmental Monitoring

Thus, the key federal-level bodies responsible for mainstreaming biodiversity into the energy sector are: Ministry of Natural Resources and Ecology, Ministry of Energy, and Ministry of Regional Development. Federal Services, as control authorities, have branches in all regions of Russia providing for the vertical federal power structure. Federal Ministries are authorized to issue regulations and submit, via federal government, draft federal laws to the State Duma (lower house of Parliament) for consideration. Some Services with direct reporting lines to the President or Government may issue their regulations. Other services and agencies may issue regulations only via their umbrella ministry.

Environmental issues in Russia are under the joint power of the federation and regions (Article 72, Constitution). Thus every region has its own bodies responsible for biodiversity and resources, within the structure of the regional governments. The set and names of such bodies vary from region to region. They have authority in accordance with relevant federal laws (each resource law describes issues to be covered at federal and regional level).

II. Stakeholders at the Regional Level

Table 11. Stakeholders at the Regional Level (in Demonstration Areas)

	Public authorities	Research institutions	Major companies	Environmental NGOs
Kemerovo Oblast	Department of the Federal Veterinary and Phytosanitary Surveillance Service in Kemerovo Oblast Department of the Federal Nature Management Surveillance Service in Kemerovo Oblast Kemerovo Oblast Department for Natural Resources and Environment Kemerovo Oblast Forestry Department Kemerovo Oblast Education and Science Department Kemerovo Oblast Wildlife Protection Department	University of Kemerovo	Energy sector: Kuzbassenergo OJSC Kemerovskaya GRES Novo-Kemerovskaya Heat Station Kemerovskaya Heat Station Belovskaya GRES Tom'-Usinskaya GRES West-Siberian Heat Station Kuznetskaya Heat Station Yuzhno-Kuzbasskaya GRES Coal-mining sector: "Kuzbassrazrezugol" Coal Mining Company OJSC Kuzbassugol Coal Mining Company OJSC SUEK OJSC Siberian Coal" PA OJSC "Yuzhkuzbassugol" United Coal Mining Company OJSC "Siberian Business Union" Holding Company CJSC "Prokopyevskugol" Coal Mining Company Ltd. "ROSA-Kuzbassa" Ltd. "Southern Kuzbass" Coal Mining Company OJSC "Russian Coal" Coal Mining Company CJSC 'Stroiservice" CJSC "Raspadskaya" Coal Mining Company CJSC "Sibuglemet" Holding Company Ltd.	Kemerovo regional NGO "Environmental Information Agency" ("INEKA" KROO), Novokuznetsk Kemerovo regional NGO "Kuzbass Environmental and Local Lore Organization" ("Kuzbass EKRO KROO), Novokuznetsk "Initiative" Kemerovo regional environmental NGO ("Initiative" KROEO), Mezhdurechensk Kemerovo regional NGO "Taiga Study and Conservation Agency" ("AIST" KROO), Mezhdurechensk "Zelenyie" Mezhdurechensk City Children's Environmental Organization ("Zelenyie" MGDEOO), Mezhdurechensk Mezhdurechensk Hunters and Fishermen Organization, Mezhdurechensk "Kuznetskaya Volna" Kemerovo Children and Youth Environmental Organization, Kemerovo Kemerovo Regional Youth Organization "Youth Environmental Association" (UNECO KRMOO), Kemerovo Kemerovo Regional NGO "Union of Kuzbass Ecologists" (SEK KemOOO), Kemerovo Kemerovo Regional NGO "Children's and Youth Ecological Parliament" (DUEP KROO), Kemerovo Kemerovo Regional Environmental NGO "Irbis" ("Irbis" KREOO), Kemerovo Kemerovo Regional Branch of NGO "Russian Environmental Academy", Kemerovo Kemerovo regional Environmental NGO "Raduga, Berezovsky Kemerovo Regional Environmental Youth and Students NGO "Ariadna", Kemerovo WWF Russia
Khakassia	- Department of the Federal Veterinary and	University of Krasnoyarsk	"Rusal Sayanal" OJSC – production of semi-products from aluminum or	Bograd Environmental Group (Bograd village)

	Public authorities	Research institutions	Major companies	Environmental NGOs
	Phytosanitary Surveillance Service in the Republic of Khakassia; - Department of the Federal Nature Management Surveillance Service in the Republic of Khakassia - State Committee for Environmental Protection and Management; - Territorial Environmental Management Agency of the Republic of Khakassia; - Forestry Agency of the Republic of Khakassia		aluminum alloys "Khakasenergosbyt" OJSC – power distribution "Khakasenergo" OJSC – power supply "Razrez Stepnoi" Coal Trading House Ltd. – coal cleaning "Sayano-Shushenskaya GES" OJSC – hydropower generation "Rusal Sayanogorsky Aluminum Smelter" OJSC – primary aluminum production "Chernogorskaya Coal Mining Company" Ltd. (branch of SUEK OJSC) – open-cast coal mining	WWF Russia
NAO	Department for International and Interregional Relations, Information and Communication at the Nenets Autonomous Okrug Administration	State Nature Reserve "Nenetsky" (Naryan-Mar) Nenets Federal Game Reserve (Naryan-Mar) Nenets Analytical Information Center (Naryan-Mar) Nenets Energy Efficiency and Production Purity Center (Naryan-Mar) Northern Branch of the Polar Fishery Research Institute (PINRO) (Arkhangelsk) St. Petersburg State University (St. Petersburg) RAS Botanical Institute named after Komarov (St. Petersburg) Institute of Biology under the Komi Research Center of the RAS Ural Branch (Syktyvkar) Birds Ringing Center under the RAS Institute of Ecology and Evolution	"SN-Neftegas" Ltd. (Moscow) "SN-Invest" CJSC (Moscow) RusVietpetro (Moscow) Lukoil OJSC (Moscow)	Nenets People Association "Yasavei" of Nenets AO Nenets Regional Movement of Komi-Izhemets "Izvatasyas"

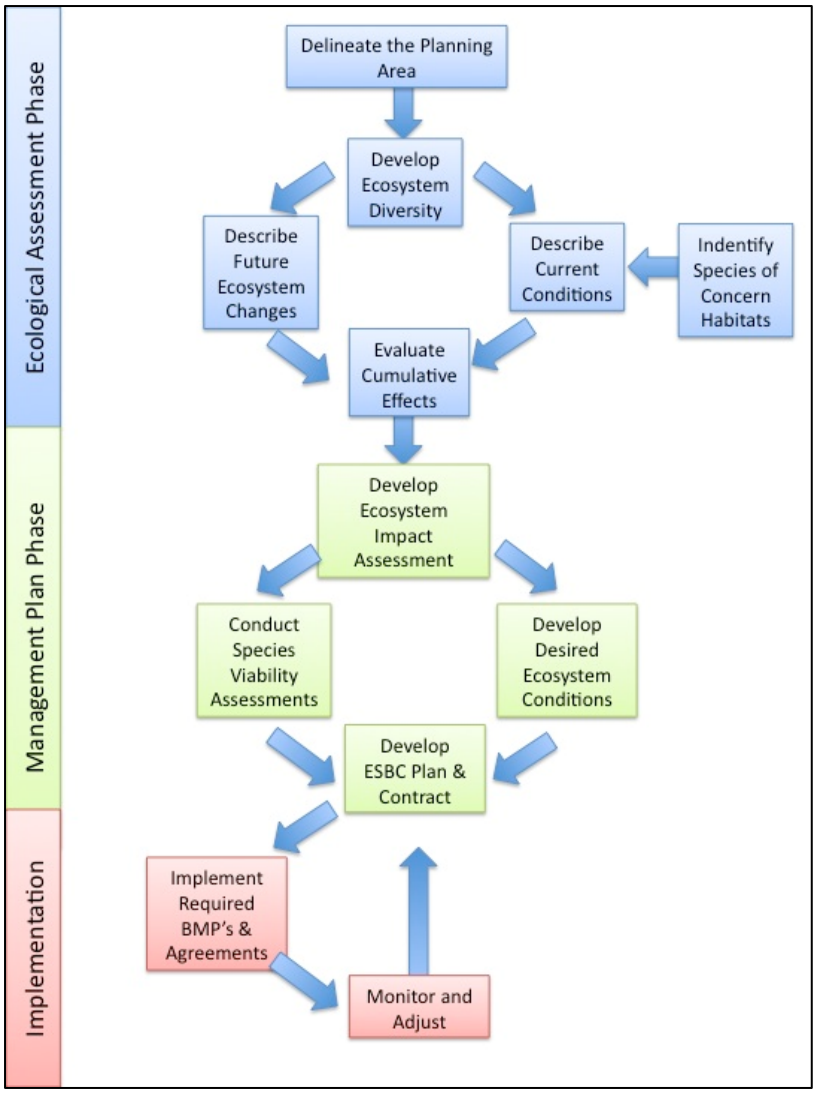
	Public authorities	Research institutions	Major companies	Environmental NGOs
		Problems (Moscow) All-Russia Environmental Protection Research Institute (Moscow)		
Southern Yakutia	Government of the Republic of Sakha-Yakutia (Yakutsk) Ministry of Nature Protection of the Republic of Sakha-Yakutia (Yakutsk)	Institute of Applied Ecology of the North of the Academy of Sciences of Sakha-Yakutia (Yakutsk) Institute of Cryolite Zone Biological Problems of the Academy of Sciences of Sakha-Yakutia (Yakutsk) Yakutsk State University (Yakutsk) Institute of Regional Economy of the Academy of Sciences of Sakha-Yakutia (Yakutsk) Nerungri branch of the Yakutsk State University (Nerungri) Yakutsk State Academy of Agriculture (Yakutsk) Olekminsky State Nature Reserve Institute of Human Ecology of the RAS Siberian Branch (Novosibirsk) North Mining Institute of the RAS Siberian Branch (Novosibirsk) Water and Environmental Problems Institute (Barnaul)	Kolmar Company Yakutugol Company RusHydro Company Mechel Company Southern Yakutia Development Corporation (Moscow)	Yakutian Public Ecological Center Yakutian Nonprofit Environmental Monitoring Network “Eige” Yakutian Ecological Education Center Yakutian Regional Brach of the All-Russia Nature Protection Society Yakutian Evenk Association

Annex F: Linking an Ecosystem Assessment Approach to Biodiversity Impact Assessments for Preparation of an EIA and Development of an Ecosystem Sustainability and Biodiversity Conservation Agreement

Based on inputs from Russian experts during the project development phase, it appears that central to the objective of mainstreaming biodiversity into the operations of energy sectors in the Russian Federation is the restructuring/ expansion of the EIA process to incorporate conservation of biodiversity as a key part of the process. What follows is a discussion of Biodiversity Impact Assessments taken from the International Association of Impact Assessment (IAIA), which describes the overarching and implementation principles for Biodiversity Impact Assessments. The IAIA strongly endorses an ecosystem approach as the central approach to the development of impact assessments.

The Annex then discusses the process for ecosystem assessment based on the approach developed by the Ecosystem Management and Research Institute (EMRI). The central premise is that an ecosystem assessment allows for a full understanding of the ecosystem structure, function and expected disturbance patterns and the description of ecosystem services. This assessment then forms the basis for a biodiversity impact assessment. This then leads to the complete EIA and the basis for developing an Ecosystem Sustainability and Biodiversity Conservation Agreement (ESBCA) for licensing or even decommissioning an energy project. The ecosystem assessment also provides the baseline information needed to judge the efficacy of biodiversity offsets and ecosystem services which may be modified or destroyed during the development of the energy project.

The diagram to the right links the Impact Assessment process with an Ecosystem Assessment and then leads to the development and implementation of an Ecosystem Sustainability and Biodiversity Conservation Agreement. The agreement includes all best management practices to be used within the project as well as payments for ecological services impacted and use of biodiversity offsets or off site mitigation for assuring no net loss of biodiversity.



A. Principles for Biodiversity Impact Assessment (from IAIA)

Overarching principles

Aim for Conservation and "No Net Loss" of Biodiversity. The biodiversity-related Conventions are based on the premise that further loss of biodiversity is unacceptable. Biodiversity must be actively conserved to ensure it survives, continuing to provide services, values and benefits for current and future generations. The following approach is to help achieve no net loss of biodiversity in energy projects:

- Avoid irreversible losses of biodiversity.
- Seek alternative solutions that minimize biodiversity losses.

- Use mitigation to restore biodiversity resources.
- Compensate for unavoidable loss by providing substitutes of at least similar biodiversity value through biodiversity offsets.
- Seek opportunities for enhancement.

This approach can be called "positive planning for biodiversity." It helps achieve no net loss by ensuring:

- Priorities and targets for biodiversity at international, national, regional and local level are respected, and a positive contribution to achieving them is made.
- Damage is avoided to unique, endemic, threatened or declining species, habitats and ecosystems; to species of high cultural value to society, and to ecosystems providing important services.

Take an Ecosystem Approach. The CBD advocates an "ecosystem approach" because people and biodiversity depend on healthily functioning ecosystems that have to be assessed in an integrated way, not constrained by artificial boundaries. The ecosystem approach is participatory and requires a long-term perspective based on an ecological ecosystem assessment of ecosystem structure, function and disturbance regimes and adaptive management to deal with the dynamic nature of ecosystems, uncertainty and the unpredictable nature of ecosystem functions, behavior and responses. In this assessment the role of expected climate change must be factored in over the project-planning horizon. Biodiversity concerns are not limited to protected areas but should be considered across the energy project planning landscape.

Seek Sustainable Use of Biodiversity Resources. Use Impact Assessment to identify, manage and promote sustainability of biodiversity in the project planning landscape. Recognize the benefits of biodiversity in providing essential life support systems and ecosystem services such as water yield, water purification, breakdown of wastes, flood control, storm and coastal protection, soil formation and conservation, sedimentation processes, nutrient cycling, carbon storage, and climatic regulation as well as the costs of replacing these services.

Ensure Equitable Sharing. Ensure traditional rights and uses of biodiversity are recognized in Impact Assessments and the benefits from commercial use of biodiversity are shared fairly. Consider the needs of future as well as current generations (inter-generational needs): seek alternatives that do not trade in biodiversity "capital" to meet short term needs, where this could jeopardize the ability of future generations to meet their needs.

Take a Participatory Approach. Consult widely to ensure that all stakeholders have been consulted and that important biodiversity values are taken into account. Valuation of biodiversity can only be done in negotiation with the different groups or individuals in society (stakeholders) who have an interest in biodiversity. Use traditional and indigenous knowledge wherever appropriate. Work carefully with indigenous communities to ensure that knowledge of biodiversity is not inappropriately exploited.

Operating principles for developing Impact Assessments

1. Screening. Use biodiversity inclusive screening criteria to determine whether important biodiversity resources may be affected. Biodiversity screening "triggers" for IA should include:

- Potential impacts on protected areas and areas supporting protected species.
- Impacts on other areas that are not protected but are important for biodiversity.
- Activities posing a particular threat to biodiversity (in terms of their type, magnitude, location, duration, timing, reversibility).
- Areas that provide important biodiversity services including extractive reserves, indigenous people's territories, wetlands, fish breeding grounds, soils prone to erosion, relatively undisturbed or characteristic habitat, flood storage areas, groundwater recharge areas, etc.

Encourage development of a biodiversity screening map indicating important biodiversity values and ecosystem services. If possible, integrate this activity with the development of a National Biodiversity Strategy and Action Plan (NBSAP) and/or biodiversity planning at sub-national levels (e.g., regions, local authorities, towns) to identify conservation priorities and targets.

Areas with "important biodiversity" are those that:

- Support endemic, rare, declining habitats/species/genotypes;
- Support genotypes and species whose presence is a prerequisite for the persistence of other species;
- Act as a buffer, linking habitat or ecological corridor, or play an important part in maintaining environmental quality;
- Have important seasonal uses or are critical for migration;
- Support habitats, species populations, and ecosystems that are vulnerable, threatened throughout their range and slow to recover;
- Support particularly large or continuous areas of previously undisturbed habitat;
- Act as refugia for biodiversity during climate change, enabling persistence and continuation of evolutionary processes;
- Support biodiversity for which mitigation is difficult or its effectiveness unproven including habitats that take a long time to develop characteristic biodiversity;
- Are currently poor in biodiversity but have potential to develop high biodiversity with appropriate intervention.

2. Scoping. This leads to the articulation of Terms of Reference for Impact Assessments, and the definition of issues to be studied and the methods to be used. It is good practice to produce a scoping report for consultation. This should address the following issues (on the basis of existing information and any preliminary surveys or discussions):

- The type of project, program, plan or policy, possible alternatives and a summary of activities likely to affect biodiversity
- An analysis of opportunities and constraints for biodiversity (include "no net biodiversity loss" or "biodiversity restoration" alternatives)
- Expected biophysical changes (in soil, water, air, flora, fauna) resulting from proposed activities or induced by any socioeconomic changes
- Spatial and temporal scale of influence, identifying effects on connectivity between ecosystems, and potential cumulative effects
- Available information on baseline conditions and any anticipated trends in biodiversity in the absence of the proposal
- Likely biodiversity impacts associated with the proposal in terms of composition, structure and function
- Biodiversity services and values identified in consultation with stakeholders and anticipated changes in these (highlight any irreversible impacts)
- Possible measures to avoid, minimize, or compensate for significant biodiversity damage or loss, making reference to any legal requirements
- Information required to support decision making and summary of important gaps
- Proposed IA methodology and timescale

This sets the Terms of Reference and limits to current information. It allows for development of an approach for gathering additional information from stakeholders.

3. Impact study and preparation of EIS. Address biodiversity at all appropriate levels and allow for enough survey time to take seasonal features into account. Focus on ecosystem disturbance processes and ecological services that are critical to human well-being and the integrity of ecosystems. Explain the main risks and opportunities for biodiversity. The basis of this should be an ecosystem assessment that describes the ecosystem structure function and disturbance processes which maintain the dynamic nature of the ecosystem services.

Questions to ask:

At the gene level, to what extent will the proposal have significant effects on:

- Genetic diversity of species, particularly rare and declining species and those with identified as priorities in NBSAPs and/or subnational biodiversity plans?
- Is there opportunities for species populations to interact, e.g., by increasing habitat fragmentation and isolation?
- Is there a risk of extinction?
- Is there risk for persistence of locally-adapted populations?

At the species level, to what extent will the proposal:

- Alter the species-richness or species-composition of habitats in the study area?
- Alter the species-composition of communities?
- Cause some species to be lost from the area?
- Affect species identified as priorities in NBSAPs and/or subnational biodiversity plans?
- Increase the risk of invasion by alien species?

At the ecosystem level, to what extent will the proposal:

- Change the amount, quality or spatial organization of habitat?
- Affect plans to enhance habitat availability or quality?
- Damage ecosystem processes and services, particularly those on which local communities rely?

Key questions:

- If habitats will be lost or altered, is alternative habitat available to support associated species populations?
- Are there opportunities to consolidate or connect habitats?
- Are there ways not only to meet no net loss, but to actually achieve net benefits for conservation of biodiversity?

Consider the full range of factors affecting biodiversity. These include direct drivers of change associated with a proposal (e.g., land conversion and vegetation removal leading to loss of habitat—a key driver of biodiversity loss, emissions, disturbance, introduction of alien and genetically modified species, etc.); and indirect drivers of change which are harder to quantify, including demographic, economic, socio-political, cultural and technological processes or interventions.

Evaluate impacts of alternatives with reference to the baseline situation. This baseline is best developed at the landscape level using an ecosystem assessment process. Compare against thresholds and objectives for biodiversity. Use NBSAPs, sub-national biodiversity plans and other conservation reports for information and objectives. Take into account cumulative threats and impacts resulting either from repeated impacts of projects of the same or different nature over space and time, and/or from proposed plans, programs or policies.

Biodiversity is influenced by cultural, social, economic and biophysical factors. Cooperation between different specialists in the Impact Assessment team is thus essential, as is the integration of findings that have bearing on biodiversity. Provide insight into cause-effect chains. If possible, quantify the changes in quality and amount of biodiversity. Explain the expected consequences of any biodiversity losses associated with the proposal, including the costs of replacing biodiversity services if they will be damaged by a proposal. How do these relate to relevant biodiversity priorities and objectives or any legal obligations? Indicate the legal issues that create the boundary conditions for decision-making.

4. Mitigation. Remedial action can take several forms, i.e., avoidance (or prevention), mitigation (including restoration and rehabilitation of sites), and compensation. Apply the "positive planning approach," where avoidance has priority and compensation is used as a last resort measure. Avoid "excuse"-type compensation. Look for opportunities to positively enhance biodiversity. Acknowledge that compensation will not always be possible; there will still be cases where it is appropriate to say "no" to development proposals on grounds of irreversible damage to biodiversity.

5. Review for decision-making. A specialist with appropriate expertise should undertake peer review of environmental reports with regard to biodiversity, where biodiversity impacts are significant. Depending on the level of confidentiality of public decision-making, consideration should be given to the involvement of affected groups and civil society.

6. Decision making. Avoid pitting conservation goals against development goals; balance conservation with sustainable use for economically viable, and socially and ecologically sustainable solutions. For important biodiversity issues, apply the precautionary principle where information is insufficient and the no net loss principle in relation to irreversible losses associated with the proposal.

7. Management, monitoring, evaluation and auditing. It is important to recognize that all prediction of biodiversity response to perturbation is uncertain, especially over long time frames. Management systems and programs, including clear management targets (or Limits of Acceptable Change (LC)) and appropriate monitoring, should be set in place to ensure that mitigation is effectively implemented, unforeseen negative effects are detected and addressed, and any negative trends are detected. Provision is made for regular auditing of impacts on biodiversity. Provision should be made for emergency response measures and/or contingency plans where upset or accident conditions could threaten biodiversity.

B. Introduction to Ecosystem Assessment Process (from EMRI)

The Convention on Biodiversity defines biodiversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." Biodiversity of an area is considered the native ecosystems, species, and genetic variability inherent to an area. Maintaining the diversity of ecosystems provides the underpinnings for maintaining all other levels of biodiversity, and should be a fundamental component of all impact assessments. A focus on ecosystem diversity provides en efficient and effective basis for determining cumulative effects to landscapes. It also provides a science-based process for prioritizing conservation objectives and helps make sense of conflicting habitat needs among species.

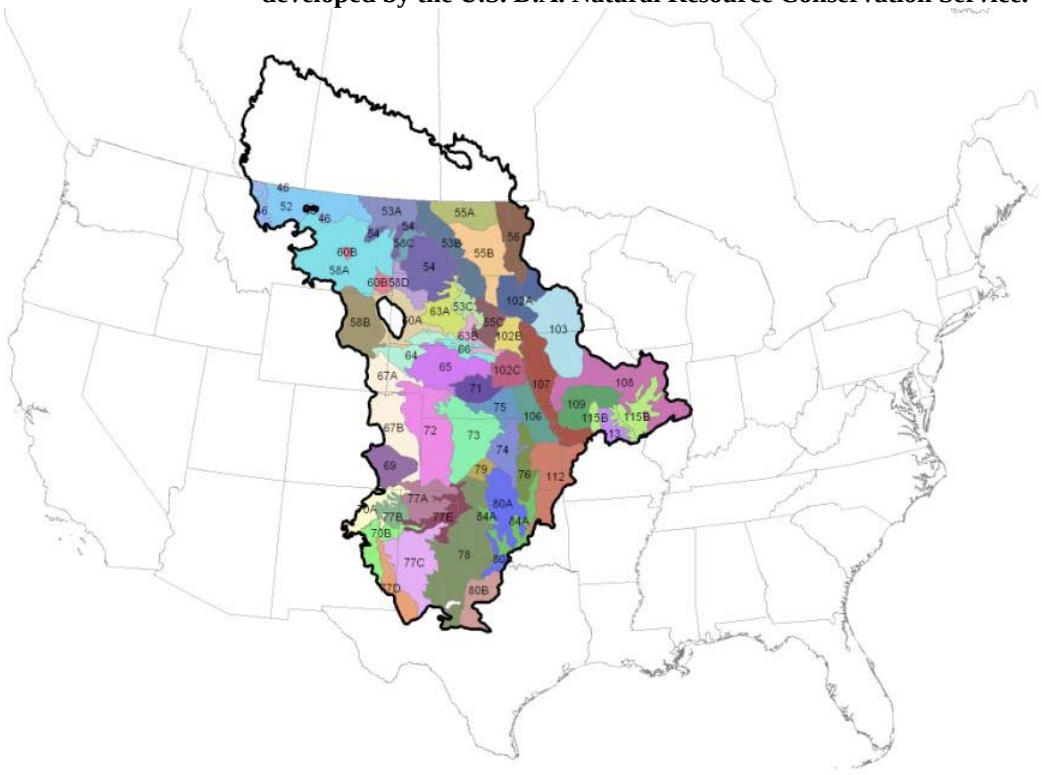
Terrestrial ecosystem diversity can be defined as the variety of native plant communities and their associated animal populations (each specific community is considered a functional ecosystem) that would occur within a landscape as influenced by natural disturbance processes. Aquatic ecosystem diversity must include watershed considerations at multiple scales in addition to abiotic factors and different types of species assemblages. Ecosystem diversity, if properly characterized, provides for all of the species and their assemblages that have evolved and adapted to the inherent abiotic environment and processes occurring in each landscape considered for impact assessment. Maintaining adequate representation of all ecosystems assures that the habitat needs of all resident species will be provided, the biggest single challenge for maintaining overall biodiversity.

The Ecosystem Management Research Institute (EMRI) has developed a process for characterizing and evaluating terrestrial ecosystem diversity in impact assessments. This process was first described in publications by Haufler et al. (1996, 1999), but has been further developed and defined since then. A summary of this process is described below.

Delineate planning regions

An ecosystem, as described above, is an assemblage of plant species occurring on a specific type of site in response to disturbance processes along with the animal species that utilize that particular plant assemblage for some or all of their habitat requirements. Assemblages of plant species will vary between any two points, but similar groupings of species can be found to occur over multiple locations where similar abiotic conditions and disturbance processes overlap. Such repeatable patterns are bounded by broader geo-climatic changes. Various classification systems have been developed to delineate such geo-climatic boundaries. Delineating where such geo-climatic changes occur across impact assessment areas and the overall boundary of the impact assessment, is a first step in the ecosystem diversity process. The figure below depicts geo-climate boundaries defined as Major Landscape Resource Areas (MLRA) in a classification systems developed by the U.S. Department of Agriculture, Natural Resource Conservation Service used for characterizing grassland ecosystem diversity within the Great Plains of the United States. Each MLRA in this example could function as a planning region for characterizing terrestrial ecosystem diversity. Various other examples could also demonstrate this concept.

Figure 12. Planning region delineation for the Great Plains of the United States based on Major Land Resource Areas as developed by the U.S. D.A. Natural Resource Conservation Service.



Describe Native Terrestrial Ecosystem Diversity

For each delineated planning region occurring within the impact assessment area (typically the impact assessment area will fall within one planning region), native ecosystem diversity is characterized and described. Ecosystem diversity is considered the result of the interaction of different ecological sites (abiotic conditions) and disturbance processes operating across these sites. Ecological sites are the product of soils, elevations, aspects, groundwater, precipitation, and other abiotic factors that provide favorable environments for growth of various plant species. Disturbance processes such as fire, herbivory, floods, drought, wind, etc then also affect plants suitable for a particular site. Successional processes following disturbances determine the specific plant assemblage that will be present, along with its structure and functions. Such disturbance and successional processes can be characterized using state and transition models (see Figure below for an example), and each plant community or state in these models can be further described in terms of its full plant diversity and importance to animal populations. Thus, inherent ecosystem diversity is described as the full array of each specific ecosystem (the result of the interaction of an ecological site and disturbance processes) that could occur in the impact assessment area.

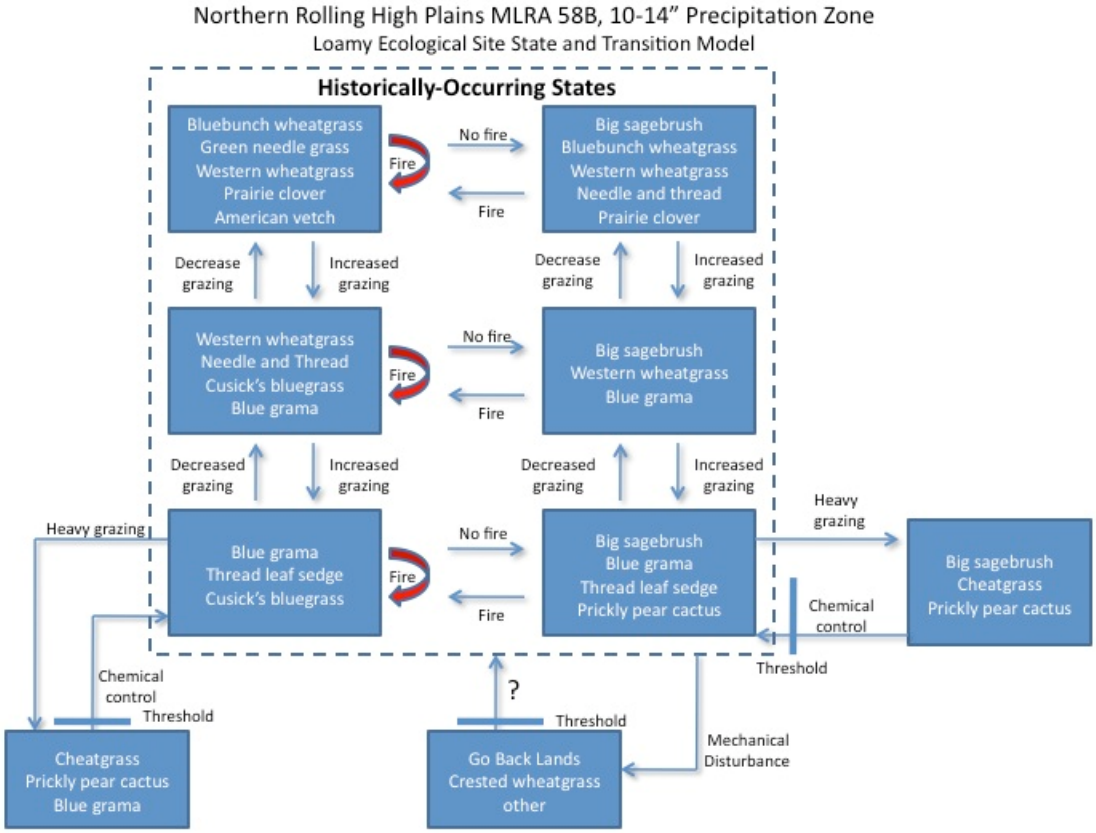
Quantify Native Ecosystem Diversity

The state and transition models used to describe the interactions of each ecological site with disturbance processes can be used to estimate the percentages of each specific native ecosystem that would occur across one ecological site as a result of natural disturbance processes. Maps of amounts and locations of each ecological site quantify the diversity of the abiotic environment, while models of disturbance processes quantify their influence on amounts of specific ecosystems. This information provides a reference for determination of cumulative effects.

Quantify Existing Conditions

The existing plant communities occurring on the different ecological sites within the impact assessment area can be compared to the reference conditions. Existing plant communities that have compositions and structures sufficiently similar to any specific native ecosystem described above is considered to be representative of that particular reference condition. The total amount of representation of each reference native ecosystem occurring today can be compared to its estimated amounts under natural disturbance processes to determine the cumulative changes to native ecosystem diversity in each impact assessment area.

Figure 13. State and transition model of natural disturbance processes for loamy ecological sites in the Missouri Coteau Major Land Resource Area for an impact assessment in north central South Dakota.



Set Conservation Objectives for Native Ecosystem Diversity

The cumulative effects analysis of native ecosystem diversity provides useful information for conservation planning. Native ecosystems that are lacking in the impact assessment area compared to the reference conditions, or that are in substantially different amounts than would occur under natural disturbance processes, are likely candidates for conservation or restoration. Restoration planning should also consider the likely influences of climate change to ensure that the restored or protected ecosystem will be sustainable and resilient under predicted future conditions. Locations for restoration are first bounded by the distribution of the appropriate ecological site. Additional determinants include the range of desired sizes of protected or restored areas to provide for functional ecosystems, their distribution to meet the needs of key flagship or indicator species, and the desired locations of restored or protected ecosystems to provide desired linkage zones for species movements.

Summary

This process has been used to characterize ecosystem diversity in a number of landscapes (see www.emri.org for descriptions), and to conduct cumulative effects analyses for this level of biodiversity. The process provides for a true ecosystem-based approach to be applied in an impact assessment. This serves as the basic underpinning on which to evaluate, plan, and manage other levels of biodiversity. This process is most useful where an historical timeframe for characterizing natural disturbance processes, including human interactions, can be identified. For example, in North America, a timeframe of 500 to 1000 years pre-European settlement is often used as a reference condition. This process is flexible and can be developed using local inputs to incorporate available knowledge and engage and inform local populations.

Annex G: Energy Sector Compendiums on Biodiversity Conservation and Energy Development/Production

The biodiversity compendia should be developed based on the initial output from the ecosystem management and policy teams (Output 1.2) and informed by international best management practices and processes. A second draft should be completed at the end of the project that would update the first draft and add experience from the demonstration projects as lessons learned. Each compendium will require the expertise of a national energy policy expert for each energy sector, a national biodiversity expert, and the 2 international experts (Expert on Ecosystem Assessment/ Management; Expert on Mainstreaming Biodiversity Impact Assessment and Conservation into Business Practices and Government Policies). The biodiversity experts should be the same for all three of the compendia thus making sure that the biodiversity conservation tools and processes are the same except for specific needed adjustments for the specific issues in each sector. Three workshops, one for each sector should be held at the beginning of the compendia writing process to get the full support of the appropriate ministries as well as private and state companies. The initial sector drafts should be reviewed and edited by several company environmental management representatives as well as national NGOs. However, final decisions on the final text should be left to the drafting team. The primary language will be Russian, but it will be valuable for each of the energy sectors to have English versions for international contractors and clients.

The final compendia should have the logos and endorsements of various companies as well as federal and regional ministries. To significantly increase the effectiveness of the document a brief forward endorsing the document should be signed by the Minister of Natural Resources and the Minister of Energy.

Proposed Annotated Table of Contents

Executive Summary:

This section discusses the key points to be made in the compendium for high-level management executives for Companies, Federal and Regional Ministries, and international interests. This annotated outline serves as a template for each of the energy sectors.

Introduction: Biodiversity Conservation Compendium: Energy Sectors

The introduction will develop the intent and purpose of the Biodiversity Conservation Compendium for each energy sector. The chapter will discuss whom the compendium is targeted which is primarily oil/ coal/ hydro companies, federal and regional government employees. There will be a subsection on what biodiversity is and why it is important to the Russian Federation.

Chapter 1: Review of the Economic and Social Value Energy Sectors in the Russian Federation

This chapter will give an overview of the domestic oil/ coal/ hydropower sector in the Russian Federation. This will include a perspective on magnitude of territories developed, current production levels, maps of current production areas and maps of reserves and expected future development. The chapter will discuss number of jobs, contribution to GDP, contribution to the federal and regional budgets, specific types of positive infrastructure and social benefits delivered from the sector and where.

Chapter 2: Review of Biodiversity Conservation, Economic and Social Values of Biodiversity and Issues in the Russian Federation relating to Energy Industry Sectors

This chapter will review the major biodiversity conservation efforts, issues, key species and ecosystems as well as major opportunities for the oil/ coal/ hydropower sector to make positive contributions. This section will be informed by the biodiversity review now being conducted. The chapter will review the uniqueness of various key areas of biodiversity such as the Caucasus Mountains and the Arctic. The chapter will also discuss the history of biodiversity conservation and ecosystem science in Russia.

Chapter 3: Energy Sector Development and Production: Potential Primary and Secondary Impacts on Biodiversity in the Russian Federation

This chapter will review the major issues of concern for biodiversity conservation in regards to oil/ coal/ hydropower exploration and production by ecosystem types:

- Impacts in Marine Ecosystems
- Impacts in Arctic Ecosystems
- Impacts in Terrestrial Ecosystems

Chapter 4: Economic and Biodiversity Risk Assessment Analysis Process as well as economic trade off analysis for various biodiversity friendly technologies

This chapter will develop the process for Economic and Biodiversity Risk Assessment that can be conducted at the initiation of a proposed project. The Risk Assessment Process will be conducted prior to the development of a full EIS as part of an initial feasibility study for a project. This will inform the further detailed analysis of an EIS that we expect to contain an ecosystem assessment as part of the Impact assessment.

Chapter 5: Review of Russian Federation Legal Policies, International Agreements, Roles and Responsibilities of Federal and Regional Ministries, Departments, and Institutes

This chapter will review current policies, regulations, and the intent of International Treaties or Agreements regarding Biodiversity Conservation. The chapter will create a framework for understanding the roles and responsibilities of various government entities in risk assessment, planning, ecosystem assessment process, EIS development, licensing process, implementation monitoring, and restoration activities. If these are not clearly understood or are lacking then this chapter will point out the need for developing these roles and responsibilities. All of these processes will be linked to the concept of a contractual agreement for the development of specific projects. The agreement is described in detail in the next chapter along with the various biodiversity conservation tools.

- Federal law and regulatory process
- Federal Ministries, Departments and Institutes: Roles and Responsibilities
- Regional regulatory requirements and discussion of process

Chapter 6: Biodiversity Conservation Solution Tools: Review of international best management practices development programs and implementation processes, advances in technologies to solve specific issues, and implementation strategies

This chapter will serve as a primary resource section. It will be a review of current literature, project development planning practices, and project specific collaborative development processes for the oil/ coal/ hydropower sector. The chapter will review such programs as the Energy Biodiversity Initiative, Environmentally Friendly Drilling, and other programs. This chapter will also review major international companies stated policies as well as their success in implementing the policies. There will be a literature cited section and internet addresses to get more information.

Chapter 7: Integrating Biodiversity Conservation into Company Environmental and Safety Management Programs & Cost: Benefit Analysis

This chapter is a process chapter and will translate various International Environmental Management Processes into methods and approaches for improving Russian State and Private companies management processes. These conceptual processes work for pollution control, environmental safety as well as integration of Ecosystem Sustainability and Biodiversity Conservation. The chapter will define the project life cycle process, the components necessary for implementation and monitoring of best management practices and the general roles and responsibilities for company personnel.

Chapter 8: Business Incentives and Conservation Solutions: A sustainable ecosystem approach to biodiversity conservation

This chapter will describe the entire process for developing a Ecosystem Sustainability and Biodiversity Conservation Management Plan and Agreement (ESBCMP and ESBCA) for the lifecycle of oil/ coal/ hydropower development project. The Plan will be based on an ecosystem assessment and may include any or all of the various policy tools such as Avoid-Reduce-Remedy, Biodiversity Mitigation Banks, Payment for Ecological Services, Biodiversity Offsets.

Annex 1. Table of Primary and Secondary Biodiversity Impacts of the Energy Industry Sectors

Create a summary of the major primary and secondary impacts that can occur due to oil/ coal/ hydropower exploration based on experience in Russia. This assessment will recognize the different ecosystems that are potentially affected.

Annex 2. Table of Best Management Practices that can Avoid-Reduce or Remedy Biodiversity Impacts

Summary of key best management practices and technologies that can best positively affect the list of primary and secondary biodiversity impacts

Annex 3. Table of Solution based processes for conservation of biodiversity

Contractual Agreements, Biodiversity Offsets, Mitigation Methods, Payments for Ecological Services

Annex 4. List of International references for Best Management Practices and company policies.

References and in some cases actual list of suggested best management practices from various international industry associations will be listed to demonstrate the international norms that exist for a specific industry sector.

Annex 5. Discussion of Indigenous Peoples' issues and the energy sector

Discussion of how IPs are affected by oil/ coal/ hydropower sector developments and how they can become partners in biodiversity conservation efforts.

Annex H: Ongoing Policy Dialogue in the RF on Environmental Policy Reform

Following the State Council Presidium Meeting on May 27, 2010, the President of the RF Dmitry Medvedev, came forward with instructions for the development of environmental legislation, target programs and regulations, and decisions to finance environmental measures. The President has noted that a "consolidated government policy" is required to resolve environmental protection issues. He also underlined that compliance with environmental laws must become a code of conduct.

All of the environmental instructions provided at the State Council Presidium Meeting are addressed to the Government of the RF. Some of these instructions provide for their execution in cooperation with authorities of constituents of the Federation. The President instructed the Government to develop and submit for consideration by deputies of the State Duma a whole package of draft laws. The legal framework for the reform of environmental laws includes: (i) Edict of the President of the RF "Specific measures to increase energy and environmental protection efficiency"; (ii) The concept of long-term socio-economic development of the RF for the period up to the year of 2020; and (iii) Core activities of the Government of the RF for the period up to the year of 2012.

Legal reform will target improvement of the system for standardizing negative impact on the environment, economic incentives for waste treatment sector to reduce waste volumes and increase recycling. It was also proposed to develop legal and economic mechanisms at legislative level, to stimulate implementation of "green" technologies.

Notably, development of a draft law on increasing the efficiency of state environmental monitoring has been recommended. This will lead not only to increased numbers of officials, performing environmental monitoring, but will also expand limits of their authority. Particularly, they will be authorized to issue warrants to suspend operation and address financial and credit institutions with orders to cut financing to violators.

A most important proposal of the President was to pass a law, establishing a federal executive authority, coordinating environmental activities. At present, three agencies at once are in charge of environmental issues: Ministry of Natural Resources and Environmental Protection, Federal Service for the Oversight of Natural Resources and Federal Service for Environmental, Technological, and Nuclear Supervision.

Proposals to provide for mandatory state environmental impact assessment of project documents of environment-damaging sites are to be prepared. Federal and regional foundations are to be established to finance environmental protection activities and implementation of "environmentally friendly technologies". It is also proposed to develop procedures for using voluntary environmental responsibility mechanisms in companies with government participation. And all government corporations will have to regularly publish reports "on sustainability of their development and securing environmental responsibilities".

In April 2010 the Ministry of Natural Resources and Environmental Protection presented a package of draft laws for "mitigation of negative impact on the environment". The package includes a draft Federal law on environmental damage caused by pollutant emissions and wastewater discharges. As of today, laws do not provide a definition of such damage, and this is an obstacle to taking action and seeking compensation for environmental impact. The Ministry proposed to develop by 2016 a register of the best existing environmental technologies, start an extensive awareness campaign on such technologies and at the same time introduce drastic increases in charges for environmental impact, exceeding allowable levels: by 5 times in the beginning, and by 20 times by 2016. According to the MNRE, the current total amount of charges for environment pollution is only 16 billion rubles, i.e. one hundredth of a percent of corporate profits. Along with this, various economic incentives will be extended to enterprises that upgrade their production practices.

Another major issue highlighted is the non-stop reform of government environmental agencies, leading to an exodus of competent specialists. As a result, positions of inspectors and even senior officials are often occupied by persons, having no adequate experience or just remotely related to environmental issues. This has a strong effect on quality of draft regulations prepared by them, quality of inspections, etc.

At the State Council Presidium Meeting (May 27, 2010), the Minister of Natural Resources noted the following issues related to government regulation in the area of environmental protection as most critical:

1. The system of state environmental impact assessment has become practically nonexistent and covers less than 5% of all sites.
2. The system of standards is subjective and allows enterprises to project unlimited impact on the environment.

3. Charges for negative impact are minimal and have not been adjusted since 1991, no incentives are offered to enterprises to implement "green" technologies.
4. There are no economic incentives for transition of enterprises to the best available technologies.
5. State environmental control lacks accurate measurement data of environmental conditions.
6. Fines for violation of environmental laws are minimal.
7. Great variety of administrative barriers causes investment climate deterioration.
8. Mechanisms to eliminate accumulated environmental damage are lacking.

The Minister also proposed the following key areas for reform:

1. Re-instate the system of state environmental impact assessment
2. Make a transition to a system of standards, based on the best available technologies
3. Raise charges for negative environmental impact
4. Implement economic incentive measures for upgrading production
5. Increase efficiency of environmental control and monitoring
6. Reduce numbers of administrative barriers
7. Eliminate accumulated environmental damage

The Minister particularly noted that in 2007, in the process of elimination of excessive administrative barriers, the system of state environmental impact assessment was almost liquidated. Assessment procedures were only kept up at sites, located in specially protected natural areas, in sea waters and on continental shelf. As of today, the MNRE has prepared and approved, together with federal executive agencies, and sent for consideration of the Ministry of Justice a draft law "On amending the Federal Law "On Environmental Assessment" and the Urban Development Code of the RF". The draft law is designed to re-instate the system of assessment for especially hazardous sites.

The phased plan for reform of environment protection legislation provides for passing five federal laws, and about 40 by-laws. A draft of Russian environmental policy fundamentals up to the year 2030 is to be prepared, with the participation of interested public organizations in development of the draft. An annotated Table of Contents is provided below.

Draft 17.09.10

Fundamental Principles of State Environmental Policy of the Russian Federation up to the year of 2030

Annotated table of content

1. PREAMBLE

The long-term strategy of Russia is based on environmentally sustainable and environmentally responsible economic development of the country. Environmental policy of the Russian Federation is developed on the basis of international environmental standards and environmental security.

2. STRATEGIC GOALS AND PRINCIPLES OF STATE ENVIRONMENTAL POLICY

The strategic goal of state environmental policy is to preserve natural ecosystems, to support their integrity and life-support functions for sustainable development of society, improvement of quality of life, improvement of health of the population and demographic situation, provision of environmental security of the country.

Implementation of state environmental policy is based on the following principles:

- Secure compliance of economic entities with legislative and other regulatory requirements for environmental security and environmental protection;
- Providing priority to activities, aimed to prevent hazardous environmental impact on people and environment;
- Instant readiness of government agencies of the Russian Federation to prevent and eliminate consequences of environmental incidents, disasters and other emergencies;
- Systemic and comprehensive resolution of environmental security and conservation activity issues at local, regional and global levels, based on modern concepts of assessment of risks and environmental damages;
- Transparency and availability of environmental information, providing access of the public and stakeholders to environmental information, information richness and openness of environmental security activities,
- Equal focus on economic, social and environmental components of sustainable development,
- Recognition of the fact that positive development of human society is impossible with deteriorating environment;

- Public priority of life-support functions of biosphere versus direct utilization of its resources;
- Fair and transparent distribution of profit from use of natural resources and access to them;
- Prevention of negative environmental consequences, resulting from economic activities, consideration of remote environmental consequences;
- Economic, social, scientific feasibility of environmental security activities;
- Achievability, environmental and scientific feasibility of government requirements and environmental security measures;
- Economic incentives of activities, targeted at achieving environmental values;
- Global environmental responsibility – integration into global market economy system, consideration of impact of developed states and neighboring states, application of international rules and standards, cooperation for resolution of global challenges;
- Increasing role of civil society, civic movements and unions.

3. AREAS AND GOALS OF ENVIRONMENTAL POLICY

3.1. Increasing environmental efficiency and providing "green growth" of economy

This section formulates foundations and principles for state activities and creation of conditions to increase environmental efficiency and provide "green growth" of economy, such as:

- Technology upgrade, leading to reduction of pollution of the environment and harmonious exploitation of natural resources,
- Development of market mechanisms for environmental protection, increasing the role of environmental (green) incentives and taxes;
- Government support to implementation of resource-conserving, environmentally safe technologies, best available techniques (hereinafter - BAT), application of the best international environmental standards;
- Transition to modern indicators of economic and social development, use of sustainable development principles
- Consideration of absolute and specific values of efficiency of use of natural resources, energy, emission volumes, pollutant discharges, waste buildup during planning of economic activities, assessment of efficiency of the whole economy and its specific industries;
- Limitation of import into the Russian Federation of environmentally dirty machinery (equipment), technologies;
- Support to market-oriented voluntary mechanisms and liabilities to secure environmental sustainability of use of natural resources and environmental responsibility of products and services;
- Enforcement of penalties for violation of environmental laws
- Stimulation for increasing social responsibility of business

To secure environmental balance between use of natural resources during economy upgrading and capacities for self-regeneration and self-regulation of biosphere, absolute and specific target indicators of efficiency of use of natural resources and environmental impact will be established for key industries.

A list of potential indicators:

- Total and key industry-specific energy consumption per GDP unit;
- Use of renewable fuels, including waste as secondary energy resources;
- Use of oil-well gas (95% by 2012);
- Standards of manufactured fuel (deadlines for transition to Euro-4 and Euro-5);
- Specific consumption of water per unit of manufactured products, total per GDP unit and by industries – major water consumers (paper-pulp industry, metallurgy etc.), use of water recycling systems by enterprises;
- Implementation of emission screening systems at enterprises;
- Recycling for manufacturing finished products;
- Emission reduction (including pollutant emissions during production of non-ferrous metals)/discharges/waste buildup;
- Waste utilization, including reduction of production and consumption waste to be buried at landfills;
- Utilization of resource-rich waste as secondary material resources (for example, for used tyres – 70%; for used oils – 70%; for packaging materials on the whole - 50 %, including, 80% - for metallic fractions, 80% - for wood pulp-rich fractions etc.; 90% - for wood wastes etc.);
- Share of products of environmentally sustainable (forest management, living marine resources etc.) and environmentally responsible use of natural resources, including exported products.
- Total reduction of territories, marked as areas of environmental catastrophes

3.2. Improvement of the quality of life.

3.3. Preservation and rehabilitation of environment

This section formulates foundations and principles for state activities and creation of conditions to preserve and restore environment sustainability in relation to man's impact, including development of specially protected natural areas (SPNA) at national and regional levels, restoration of lands, soil capabilities, protective and environment-forming functions of natural ecosystems (forests, tundra, rivers and lakes, mountains, seas) outside SPNA, elimination of accumulated damage to environment, such as:

- Mandatory assessment of environmental impact at decision-making for economic and other activities;
- Responsibility of subjects of economic and other activities for environmental consequences for their actions, as well as previous activities of succeeded legal entities;
- Consideration of interests of population, living in SPNA territories.

A list of potential indicators:

- Expansion and development (securing environmental integration, natural species composition etc.)of the system of specially protected natural areas (hereinafter - SPNA) at national and regional levels;
- Restoration of disturbed soils;
- Soil enrichment;
- Protective and environment-forming functions of natural ecosystems (forests, tundra, rivers and lakes, mountains, seas) outside SPNA.

3.4. Prevention of dangerous climatic events and adaptation to global climate change

3.5. Circulation and recycling of waste, elimination of accumulated damage.

4. WAYS AND MEANS FOR IMPLEMENTATION OF STATE ENVIRONMENTAL POLICY

4.1. Development of a system for state administration of environment protection and use of natural resources

This section defines area, objectives and principles of state administration, formulates understanding of delineation of powers of federal authorities, authorities of constituents of the Federation and local authorities. It also describes key principles of functioning and powers of government and municipal authorities in the area of environmental protection, increasing environmental efficiency of economy and environmental responsibility for use of natural resources, such as:

- Assessment of economic efficiency of state environmental security activities and measures, taken by state ;
- Consideration of environmental efficiency of economy during planning environmental and other activities of state;
- Consideration of environmental indicators of government and municipal activities during evaluation of their performance.

4.2. Legal framework and enforcement

This section defines subjects and areas for legal regulation, and proposes principles and areas for legal framework development, including preparation of draft laws and adoption of a number of laws, provided for by instructions of President D.A.Medvedev, resulting from State Council Presidium Meeting of the Russian Federation of May 27, 2010, development of legal framework for application of strategic environmental assessment (SEA), assurance of compliance of environmental impact assessment with requirements of international financial institutions, adoption of national technical regulations and use of technical regulations of EU, Kazakhstan and Belorussia, implementation of production environmental control, elimination of accumulated environmental damage, insurance of responsibility for environmental damage, compensation of environmental damage and human health, application of assessment of environmental efficiency of business and other activities, economic incentives to environmental protection activities. The section specifies potential deadlines for revision of regulations in various spheres (for example, technical regulations– in every 5 years).

4.3. Administrative mechanisms

This section formulates key principles for developing and applying administrative mechanisms for limiting negative industrial environmental impact, such as:

- Differentiation of types and conditions for application of administrative mechanisms depending on degree of potential environmental threat of planned /performed activity;
- Achievability, scientific, environmental and economic feasibility of indicators of allowable (allowed) industrial environmental impact, their application with regard to territorial, climatic and environmental factors;
- Adequacy (proportionality) of charges for negative environmental impact, penalties for environmental violations, actions for inflicted environmental damages to costs of environmental rehabilitation;

This section also formulates objectives and principles for improving permitting activities:

- Inadmissibility of business and other activities without prior environmental impact assessment;
- State regulation of importing into the Russian Federation of environmentally dirty machinery (equipment), technologies.

4.4. Economic and financial mechanisms

Such as:

- Privileged lending, financing (co-financing), tax and other preferences for implementation of resource-conserving, environmentally safe technologies, best available techniques, application of environmental standards, achievement of environmental indicators;
- State financing (co-financing) of vital environmental programmes;
- IncIusion of environmental parameters and requirements into placement of orders for supply of products, works, services for government and municipal needs;
- Preferences to products and services, all other conditions being equal, having a document with internationally recognized voluntary environmental certification.

4.5. Environmental monitoring, information support to environmental protection activities, access to environmentally relevant information.

This section formulates principles and objectives for environmental monitoring of the country's territory (indicators of water and air quality, rate of greenhouse gas concentration, principles and objectives for space monitoring of environmental conditions, changes in numbers of species in the Red Book of the Russian Federation and indicative species, valuable for the economy). This section also formulates principles and objectives for information support to environmental protection and access of citizens and stakeholders to environmentally relevant information, such as:

- Consideration of objects of negative environmental impact and indicators of their impact;
- Provision of complete and accurate information to government and municipal authorities on environment conditions;
- Provision to users of natural resources of information on resource-conserving technologies, best available techniques, environmental standards, environment conditions
- Public availability of information on declarations and permits for environmental impact etc.;
- Development of voluntary non-financial sustainable development reporting and transition to required publication of non-financial sustainable development reports in accordance with international standards by government corporations and companies with government stakes, audited and verified by third independent parties;
- Public availability, transparency and free access to information on environment conditions as a tool to reduce corruption risks in environmental regulations.

4.6. Research support

4.7. Environmental upbringing and education

4.8. Regional and territorial environmental policy

4.9. International cooperation in environmental policy implementation

This section formulates principles and objectives for development of international cooperation for providing global environmental responsibility of Russia as a leading global power - G8 and G20 member, including prospects for ratification by the Russian Federation of key environmental conventions (Convention on the Environmental Impact Assessment in a Transboundary Context, Bonn Convention etc.) and joining other international treaties (UN Convention to Combat Desertification, UN UNECE "Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters" etc.), and also goals, tasks and principles of bilateral cooperation of the Russian Federation in environmental protection.

4.10. Decision-making and implementation of state environmental policy.

5. MONITORING AND EVALUATION OF IMPLEMENTATION OF THE ENVIRONMENTAL POLICY

This section establishes a system of regular monitoring and evaluation of implementation of the environmental policy.

6. ANTICIPATED OUTCOMES AND RISKS

7. ARRANGEMENTS FOR IMPLEMENTATION OF FUNDAMENTAL PRINCIPLES OF STATE ENVIRONMENTAL POLICY

8. FINAL PROVISIONS

Annex I: Incremental Cost Analysis

Broad Development Goals

Russia's energy sector is the backbone of its economy, and it is expanding to support growing domestic and external energy demands. The key policy document that characterizes future development of Russia's energy sector is "the Energy Strategy of Russia for the Period Up to 2030", adopted on November 13, 2009, which defines long-term development priorities for Russia's fuel and energy sector as a whole. Under this strategy, geographical expansion of oil and gas production is expected, primarily in the North of European Russia, on the Arctic shelf, in the Yamal-Nenets Autonomous District, and in the North-Western part of Krasnoyarsk Krai. Coal production is also expected to increase, with this increase being achieved primarily within Russia's major coal basins such as Kuznetsk and Kansk-Achinsk, and a number of new deposits and basins including Sosvin-Salekhard (Polar Urals), Elegest (Republic of Tuva), Elgin (Southern Yakutia) and some others. The strategy also aims for an expansion of hydropower construction in the Northern Caucasus, primarily through small and medium capacity hydropower stations. The largest hydropower facilities will be put into operation in South Yakutia as part of the Yuzhno Yakutsky hydropower complex.

Many of the above-mentioned regions harbor globally significant, undisturbed, natural ecosystems that are known for extremely low environment resilience to technological impact. Thus, future developments in the energy sector are going to have an impact on biodiversity. Indeed, the "Key Guidelines" section of the Energy Strategy stresses that the energy industry is one of the main sources of environmental pollution, accounting for over 50% of emissions of pollutants into the atmospheric air, and over 20% of wastewater disposal to surface water bodies. Recognizing the importance of environmental safety, the policy goal is continuous limitation of fuel and energy complex stress on ecology and climate by reducing pollutant emission (dumping) into the environment, greenhouse gas emission reduction, and reduction of consumer and production waste.

In terms of Russia's biodiversity conservation policies, there are two key policy documents (non-legally binding) that provide general background for biodiversity conservation in Russia. The first is the National Biodiversity Conservation Strategy developed in 2002. The second is the Ecological Doctrine of the Russian Federation (adopted by the regulation of the RF Government on 31 August 2002 No. 1225-p). Biodiversity is recognized as a condition for human existence and biodiversity conservation as one of the key goals of the state environmental policy. Biodiversity is considered as a specific component of the national environmental policy – Conservation and Restoration of Natural Environment. It has 5 key priorities: i) conservation and restoration of ecosystems, ii) conservation and restoration of rare and endangered species, iii) development of protected areas, iv) preservation of ecosystems' integrity and prevention of fragmentation by hydrotechnical, transportation and energy linear infrastructure, and v) conservation and restoration of biological and landscape diversity on anthropogenically modified areas.

Baseline

As in other parts of the world, there are a number of ecological problems associated with Russia's energy sector. Shelf-based oil and gas extraction impacts sea habitats and coastal wetlands through spatial and acoustic disturbances at feeding, migrating, and spawning/ nesting areas. Oil spill security remains low in Russia, with crude oil losses occurring through emergency and technological spills in wells and pipelines. Extraction of terrestrial oil and gas deposits destroy or undermine the resilience of habitats during construction of major facilities and access roads. Oil and gas transportation by pipelines and tankers is accompanied by destruction and/ or logging. Open coal mining changes the composition of vegetation and bird and mammal communities. Large hydropower stations inundate floodplain habitats, destroy canyon habitats, and disrupt fish populations. Specific threats in the project's demonstration areas are described in the table below:

The **Kemerovo and Khakassia demonstration areas** are major **coal** regions with open and deep mining. Air pollution is the most pressing environmental issue. Industrial emissions into the atmosphere spread hundreds of kilometers away and fall out as acid precipitation in the Kuznetsky Ala-Tau foothills causing mass destruction of fir-trees (on hundreds of thousands of hectares) in the high mountains of Kuzbass. A wide range of polluting agents penetrates into the environment due to physical and chemical weathering of mountain rocks. Their transport across large distances transforms local environmental pollution into a regional one. The coal mining industry is a significant contributor to surface and ground water pollution. As a result of air and water pollution, natural landscapes are damaged due to destruction of vegetation and natural biogenesis. In addition, there is destruction of biota at the production site due to location of housing, infrastructure and road network related to the coal mining industry, at least for the length of the company lifecycle. Biotic territories are withdrawn for long-term storage of mining wastes. The impact of on-going mining is reportedly the largest on aquatic

ecosystems adjacent to coal mines. On land disturbed by mining, microclimatic conditions have also changed because its surface covered by black coal particles gets heated more than ordinary land, which is accompanied by increasing evaporation and reducing relative air humidity. Even after rehabilitation has taken place, most of the native species disappear or remain in extremely limited populations, and thus the overall species abundance and the biodiversity richness index at coal-excavated sites remains low. Further, the transport of pollutants from disturbed lands by river flow and winds means that the negative environmental impact spreads to adjacent territories.

The **Nenetsk demonstration area** is seeing major **oil and gas** explorations. Surface water and soil cover pollution with oil products leads to grassland degradation and deterioration of habitats of all tundra species. Discharge of drilling agents and emergency spills from sludge traps result in the spread of toxic clayey wastewater and saline depth water, changing radically permafrost, hydrological and hydrochemical conditions and destroying the natural soil and vegetation cover. The risk of emergency oil spills both on the ground and within water areas creates a potential (and often real) threat of considerable pollution with hydrocarbons. There are over 900 suspended wells, and in some of them, prolonged idle time creates conditions for dangerous spontaneous oil and condensate spills, which may eventually lead to gas and oil outflow and create a direct threat to environmental safety in the region.

In shallow sea water, oil-containing toxic precipitation becomes a substrate for mussels, on which eider ducks feed thus accumulating hydrocarbons in their organisms. The habitats of sea mammals and the Polar bear are extremely vulnerable to oil extraction on the shelf and its transportation by sea. The fact that these species, especially the Polar bear, are at the top of the food chain, creates the threat of a cumulative effect of pollution (primarily organic and mercury pollution). Pollution of water reservoirs with soil suspension as a result of permanent presence of open ground in open-cast mines, road embankments and platforms for drill derricks prevents many species of invertebrates from normal existence.

The burning of accompanying gas and oil products as fuel for electricity and heat production in power-generating facilities leads to massive spread of soot leading to changes in biochemical conditions for organisms and impacting the time of snow cover melt.

Uncontrolled hunting and fishing by local population and oil-field personnel is a serious limiting factor for many species. Disturbance of fauna is another important factor. Disturbance during movement in the tundra is a major threat to predatory birds, especially in the nesting period when laid eggs may perish because of long absence of birds in the nests. Intensive movement of helicopters creates disturbance for the Atlantic walrus, whose breeding grounds have been found in some coastal areas of the Pechora Sea.

The **Sakhalin demonstration area** in the Far East is also seeing major **oil and gas** developments. Threats to terrestrial and freshwater ecosystems from oil and gas developments include habitat fragmentation, deforestation, land use change, fires and pollution. Habitat fragmentation and alteration as a direct result of oil sector activities occurs as a result of construction of pipelines and associated access roads, construction camps and facilities. Physical and microclimatic changes that occur at the right-of-way (ROW) forest transition lead to changes in vegetation and fauna, most notably in the ROW itself, but also within adjacent habitat. The open spaces created by ROWs may function as barriers to movement for forest bird species, despite their high mobility. ROWs associated with forest roads and pipelines may also have significant effects on site productivity by removing and displacing topsoil, altering soil properties, changing microclimate, and accelerating erosion.

On Sakhalin, fragmentation of forested areas is of significance with respect to impacts on remaining areas of intact dark coniferous and well developed secondary forest. Besides the direct loss of habitat and related effects on species populations, there is a potential for increased access into primary and secondary forests and the implications that this could have with regard to increased disturbance and hunting/ poaching pressure.

Erosion and run-off from pipeline ROWs and associated infrastructure enters adjacent watercourses. This effect is at its greatest during and immediately following construction, both when pipeline laying takes place through watercourses and subsequently as a result of the opening up of the ROW and the exposure of the soil surface to the erosive processes associated with precipitation. However, this effect can also persist for prolonged periods in situations where exposed soil remains un-vegetated following clearance or, in the case of watercourse crossings, further erosion occurs as a result of bank instability due to poor construction practice and related changes to stream channel profile. Erosion from road surfaces, cut banks, and ditches represents a significant and, in some landscapes, the dominant source of sediment input to streams.

One of the most often cited and potentially detrimental ecological effect associated with linear corridors such as pipeline ROWs is the facilitated spread of invasive and undesirable species into previously ecologically intact areas. The

construction of pipelines and associated infrastructure and subsequent maintenance, particularly in relatively intact habitats, represents disturbance that creates and maintains new edge habitat. In situations where ROWs are disturbed and maintenance is minimal, they can serve as ideal sites for the establishment and spread of invasive species, largely as a function of the large edge-area ratio and the disruption to ecological processes caused by construction and maintenance.

Oil spills in terrestrial ecosystems are known to have potential adverse effects on soil properties, plant communities and aquatic habitats. Oil spills in wetland areas may pose particular problems as a result of the transport and spread of oil via hydrological processes and the difficulty in clean-up of such areas. Although ground spills from pipelines may be significant, impacts from them tend to be localized. However, this may not be the case where oil is spilled at a river-pipeline crossing as any oil will quickly be transported downriver.

Construction works in the coastal and marine environment lead to: (i) Land take with consequent loss of habitat from intertidal or subtidal areas; (ii) Severance or fragmentation of areas (e.g. by the construction of barriers or causeways); (iii) Loss of marine flora or fauna and disturbance to habitats caused by extraction of material from the sea bed; (iv) Burial of marine flora and fauna by deposits on the sea bed; and (v) Noise and vibration disturbance to fish and marine mammals (for example from blasting or drilling operations). Most biological communities are susceptible to the effects of oil spills. Marine flora and fauna are subject to contact, smothering, toxicity, and the chronic long-term effects that may result from the physical and chemical properties of the spilled oil.

The **Yakutia demonstration area** is witnessing increasing **hydropower** developments with the planned construction of a hydropower station on the Timpton River. Anticipated impacts on the environment include: a) changed hydrological regime in the tail water of waterworks due to redistribution of the river flow (i.e., reduction of release into the tail water of dams in spring and summer and increase in winter); and b) inundation of the beds and floodplains of the Timpton River and its tributaries by water reservoirs and profound changes in the hydrological and hydro-biological regime in some parts of the river.

Major impacts on vegetation cover are likely due to mechanical destruction and disturbance (forest clearing during the preparation of reservoir floor, logging, filling, off-road movement of vehicles, etc.); change of vegetation due to habitat transformation without any visible damage (desiccation and inundation); surface pollution of vegetation or consequences of polluted water infiltration; possible fires including those associated not only with emergency situations but also with the presence of people; recreational loads (trampling down); uncontrolled hunting and fishing; picking of food, medicinal and decorative plants. Species diversity of vegetation as well as the composition and structure of plant communities change under the human-induced impact.

Construction of water reservoirs may have a negative impact on the customary lifestyle and reactions of animals: their seasonal migration routes, change of watering places, wintering conditions, search of feed, etc. Combined with climate change, landscape changes may lead to deterioration of birds' nesting conditions and influence migration routes of birds of passage. Winter inundation of lowlands due to water release from reservoirs may have a negative effect on the habitats of small animals.

Construction and operation of hydropower stations may produce a considerable impact on the entire population of terrestrial animals, primarily due to destruction of vast habitats, increased direct chase and disturbance, and construction of power transmission facilities. It should be taken into consideration that the Timpton River Valley coincides with the main flyway of practically all groups of birds and, therefore, a considerable number of birds when crossing the Aldan Upland stick to the river valley.

Under the baseline scenario, oil-and-gas, coal, and hydropower facilities in Russia will not give adequate attention to the biodiversity risks outlined above. The EIA process requires reporting on biodiversity information. However, in practice, the quality and completeness of information is deficient. This is not so much in terms of the description of biodiversity in the area (usually this is the most lengthy part of the EIA report), but more so in terms of a full assessment of impacts on this biodiversity (for example, inclusion of impacts on adjacent territories from blowing of coal dust) and proposals for appropriate mitigation measures. Further, for biodiversity risks that may be assessed, the emphasis will be on a reactive approach by focusing on remediation ("recultivation"), where this is possible, and not on a preventative approach that emphasizes avoidance, reduction, or offsetting biodiversity losses caused by energy facilities. Under this baseline trend of development, the growing energy sector in Russia is likely to further reduce the area of undisturbed ecosystems. Investments by private companies and corporations on resolving environmental issues will continue to be mostly for so-called "brown field projects" (construction of treatment facilities, reduction of air pollution, recultivation of lands etc.). However, the baseline scenario will not be able to address threats to globally significant biodiversity harbored in the

demonstration areas. The main barriers to shifting from this baseline situation to an alternative strategy wherein biodiversity conservation issues are effectively addressed by energy sector operations are the following:

Barrier 1: The current regulatory environment for the energy sector does not provide adequate guidance on addressing biodiversity risks and excludes positive incentives for biodiversity-friendly investment.

Biodiversity conservation is recognized in Russia's legal framework but is not accorded adequate priority, especially in the industrial sphere. It is given a lower priority in comparison with "traditional pollution" issues. The low priority of biodiversity conservation is linked to the poor methodological basis for full recognition of adverse impacts on biodiversity of energy sector activities and full implementation in practice of an avoid-reduce-remedy-offset approach (a few areas such as protected areas for endangered species are the exception). For example, the "Integrated Risk Assessment Scheme for Mining Projects in Shelf Zones of the Russian Federation" (oil and gas sector), which is currently under development, addresses issues of human security from the oil industry, and covers certain environmental risks, but fails to address risks to biodiversity. Similarly, environmental security is mandated by the "Methodological recommendations and regulations for the assessment of investment projects", but the only biodiversity risk addressed is that of floodplain inundation impact on ecosystems by large hydropower projects, failing to address the variety of other risks.

Strategic planning documents for the energy sector at the federal, regional and sectoral levels do not accord proper importance to biodiversity issues. The underlying reasons for this are that, when forecasting energy sector development, ecosystem and biodiversity information is not available to planners, there are no clearly defined methodologies for taking an ecosystem management approach to biodiversity conservation in landscapes modified by energy sector projects, and there are no databases on best management practices for mainstreaming biodiversity conservation in the energy sector that planners can make use of. While on the one hand it is an issue of availability of tools and methodologies, on the other hand there is also an issue of awareness, understanding and willingness on the part of the planners to introduce the best available tools and methodologies in to strategic planning and project design. There is a lack of a national standard "Environmental assessment of strategic planning documents in the energy sector". The Standard should be prepared in line with the EC Directive 2001/42/EC "On the assessment of the effects of certain plans and programs on the environment".

The federal laws on Environmental Protection, Sub-surface Resources, as well as the Land and Forest Codes, require oil and gas, and coal operations to restore land after resource extraction. However, there is a lack of a clearly defined methodology for pre-project determination of appropriate restoration of ecosystem services and biodiversity once excavation is complete. For example, for the coal sector, the policy on post-excavation ecosystem restoration operates almost exclusively with two "re-cultivation" approaches – establishing a water reservoir or monoculture forest plantations – which result in species impoverishment and "ecosystem decay". "Restored" ecosystems are unable to support native endemic and rare species. An example of biodiversity simplification under the current system is the Upper Angara coal extraction sites that were partly reforested and partly waterlogged, resulting in a substantial increase in common water-bird or forest species that were previously unknown or rare in the forest-steppe ecosystem. With an ecosystem approach to assessment and management of the energy project, a cost-effective strategy for restoration could be developed from the outset of the project. The end goal does not necessarily need to be the exact ecosystems that were originally on the site, but the end goal should reflect the ecosystem and species needs of the ecological region.

The present ecosystem damage compensation policies do not reflect full costs of biodiversity loss. Under the current policy, compensation payments from energy developers are "actual payments charged per individual of a fauna species lost as a result of the project". The logic of the policy obviously misses the intent of biodiversity conservation and does not account for the large menu of ecosystem goods and services. Even in terms of properly enforcing the current policy, there is no effective methodology for calculating population losses translated to "individuals of a species" lost as a result of the project. It is simply impossible to effectively calculate pre-project population levels accurately. Another element missing is the assessment and compensation for potential incomes from traditional land use that indigenous communities forego due to the development of large-scale energy projects. An example is the change in the microclimate created by the hydro cascades in Dagestan Caucasus that results in the loss of agricultural vineyards and orchards. Another example is the loss of reindeer pasture due to oil and gas infrastructure.

All regions with a heavy emphasis on energy industry will revise, in the next 10 years, their territorial plans to align them with "sustainable development" principles. However, this process is taking place without overlaying ecosystem maps, which would be a vital input into identifying areas where energy industry development should be avoided and where extra attention and additional measures are warranted to reduce biodiversity impacts and careful monitoring of the ecosystem. The Russian Federation has a rich history of ecosystem mapping and classification. Most ecosystems have been classified

and mapped or can be easily modeled from satellite imagery. These maps exist in various Institutions in Russia (some are digitized but many are not). There is no central place to access the information. There is no clearly defined planning approach or requirement for the utilization of ecosystem maps and biodiversity information to inform the development of territorial plans so that biodiversity considerations are taken in to account.

The coal sector in particular is challenged by obsolete and outdated regulations. Coal-mining enterprises are classified as hazardous facilities. Their operation is currently governed by quite a number of regulatory and procedural documents. Preliminary analysis has revealed some 500 historical and present day documents regulating compliance with environmental protection and rational use of natural resources. Neither the structure nor content of the documents has been reviewed. Therefore, along with the recently adopted documents, the documents issued in the 80-ies and even 70-ies have still not been repealed. Given the discrepancies in the current documents adopted at different points in time, some of them have proven to be entirely unusable due to fundamental changes in the government environmental management structure. In addition, nature protection measures are developed without accounting for the need for biodiversity restoration, and changing this practice shall require development of new (or review of some of the existing) regulatory documents and demonstration of processes. Further, there is essentially no regulatory and procedural framework for environmental protection as applied to decommissioning/ restoration of mines and strip-pits.

Even though there is an established national procedure for assessing environmental impacts of economic projects, or any other activity that may have direct or indirect impacts on the environment, and biodiversity is an obligatory part of EIA content, there are still some barriers to fully integrating biodiversity conservation considerations into all phases of energy sector investment projects. There have been recent changes in the preparation procedure and content of energy sector projects documents (including issues pertaining to environmental impact assessment),[23] that make it more difficult to incorporate biodiversity conservation actions. Environmental Assessment procedures (these are outlined in greater detail in Annex D) require all such projects to be subject to an EIA, followed by a State Expert Review. Some projects (or parts of projects) will be subject to an additional review – the State Environmental Expert Review – which differs from the State Expert Review in terms of the depth of coverage of environmental aspects. The table in Annex D highlights these differences. The main weaknesses in the current EIA procedures are:

- *Requirement to subject a project to a State Environmental Expert Review has become more lenient:* The mandatory principle requiring a State Environmental Expert Review for any business or other activity that may have a negative impact on the environment, or present a threat to life, health or property of people was deleted (with effect from 1 January 2007) from the federal law "On environmental protection". The wording that replaced it is as follows "mandatory inspection of design and other documents to be carried out pursuant to the Russian Federation laws". Since then, for the majority of projects, the amended Town-planning Code contained the provision that only a State Expert Review was to be carried out for design documents and engineering survey reports. Beginning on 1 January 2007, the State Environmental Expert Review has been conducted only for a small range of entities. For example, the design documents for onshore capital construction are no longer subject to the State Environmental Expert Review, unless the objects are to be located in specially protected natural areas.
- *Lack of procedures and state requirements for risk assessments:* There is no real procedure and no state requirement for real risk assessment of energy sector projects prior to moving the project to the EIA process. Some companies try to develop their internal corporate procedures for risk assessment, but there is no systematic national guidance on this.
- *Timing of EIA:* The established practice is that the EIA for energy projects is conducted after the economic and technical design has been developed, when it is actually too late or difficult to modify the project. As projects of large scale are monitored by high level of Russian Government in too many cases the nature of the development of the EIA "forces" it to be lenient to the technical and economic parameters of the project and so to confirm its safety 'in general' but not consider biodiversity conservation.
- To date the *procedure for transfer of the materials during the State Expert Review* to the State Environmental Expert Review has not been defined by any regulation. This creates a need and an opportunity to define the processes to include biodiversity conservation as a key aspect of the process.
- *Public participation and public involvement in project design and EIA discussions and decisions is not sufficient.* Such public participation could significantly improve the quality of EIAs in terms of reflecting biodiversity issues.

[23] These changes have been brought about by amendments to the Town-planning Code of the Russian Federation (Federal Law "On Environmental Impact Assessment" and provisions of the RF Government Resolution Number 87, dated 16.02.2008).

- *Classical (soviet) design institutes are still not familiar with internationally acceptable ESIA processes and products*. Further, they do not place adequate attention to the inter-linkages between biodiversity and climate change i.e., the increased stress placed on biodiversity due to a changing climate.
- *Terms of reference for EIAs* (when dealing with external consultancies and especially design institutes) prepared by energy companies do not adequately cover biodiversity issues. The quality of the EIA could be improved by educating companies in the preparation of comprehensive terms of reference.
- *Coal sector EIAs continue to disregard important environmental factors.* Environmental monitoring has shown that some factors are effectively disregarded in EIA procedures for the coal-mining industry and these factors have a negative effect on biodiversity. Among them are: coal dust blowing on the adjacent territories during the storing process (in coal storage facilities) and coal transportation by railway and from dumping sites; pollution from coal-fired power plants covering large territories and having an adverse impact on biodiversity. These and other negative impact factors are prevalent and associated with the Khakassia and Kuzbass natural conditions (strong winds and open terrain). Best practices are not followed in assessing the full transboundary effects and modeling of air pollution.

Energy companies' investments in environmental protection are mostly limited to pollution prevention and compensation and remediation activities, and not much with biodiversity. General statistical, corporate and market report formats required by the Government (Form 4-OC "Expenditures for environmental protection") do not differentiate investment in biodiversity conservation from other environmental protection investments. There are also no positive economic incentives to invest in biodiversity, such as tax benefits. Key incentives are limited to fiscal compliance and NGOs playing a watchdog role that motivates companies to undertake biodiversity conservation efforts. The desire of Russian energy companies (for example, Gasprom or Lukoil) to enter Western markets, especially retail, may provide some incentive. Some companies also view biodiversity conservation projects as charity, and undertake them as part of their corporate social responsibility or sustainability programs.

Barrier 2: Inadequate knowledge, technology and management culture

Although, within the Russian Federation there is significant amount of biological information collected that includes long-term wildlife population studies and well founded classification of ecosystem diversity and disturbance, little or none of the information is available in usable formats or accessible by energy sector companies or ministries in charge of developing EIAs. Moreover, the available knowledge/ guidance on biodiversity are limited to rare species and protected areas. There is no real assessment of biodiversity costs. Even when hydropower, coal, and oil-and-gas industries have information on biodiversity from the EIAs, the tendency is to not take this into account at all or undertake mitigation measures that are inadequate and insufficient yet allow reporting as general compliance. Exemptions include situations with protected areas and rare species which attract state or public attention. As examples, oil developments in the North and East of the country disregard impacts on whale and salmon habitats, and hydropower plants are developed without heed to the requirements of fish and floodplain mammals and plants or the need to regulate flows for natural ecosystem disturbance regimes. Protests against biodiversity risks of energy projects from the scientific and NGO communities are typically post-facto reactions to threat realization, while at the time when the energy project is being developed biodiversity studies within the overall EIA are either ignored or are too general to ensure biodiversity security. What is missing is a full assessment of and proposals for options for more appropriate mitigation measures.

While Russia is undertaking significant efforts to advance its technological levels in its priority fields of economic development, the know-how for biodiversity risk prevention and mitigation in energy extraction/ production and transportation is ecologically inadequate. Few new environmentally sound technologies for minimizing biodiversity impacts have been introduced into the energy sectors in Russia. The scarcity of research-and-development investment by the oil-and-gas industry in Russia is causing prolonged industry dependence on obsolete technologies. Energy investors tend to apply limited working capital to priorities other than biodiversity conservation, and to invest in biodiversity-friendly solutions is perceived as a burden on their income statement, not as an opportunity to increase stock price, or ensure longer-term financial solvency by reducing long term costs.

Even foreign companies entering the Russian market often perceive the Russian public as "ecologically ignorant" and attempt to enforce less expensive and more risky technologies or try to avoid placing a technology compliant with biodiversity security (examples include attempts of a group of companies including Exxon Mobil and Shell to avoid underground piping of drill waste in Sakhalin, which is otherwise a standard Best Available Technology used in Alaska,

North Sea and similar environments elsewhere in the world). There are multiple international and national compendia on developing planning processes as well as information on the latest technologies that are more biodiversity-friendly but the transfer, which could take place quite efficiently by tapping into the resources of International Business Associations, is not taking place.

When energy sector investments are defined by the use of old technologies by local developers or lack of appropriate technologies by foreign companies, for example in the Arctic sea-shelf and coastal areas, Eastern Siberia, Caucasus and other biodiversity hot-spots, they immediately encounter resistance from local authorities and NGOs. This status-quo of investors promoting projects with obsolete technologies is unsustainable, and technologies have to change. As one of the most relevant examples, the current Arctic oil and gas extraction and transportation projects often miss the opportunity to incorporate the know-how for drilling and physical infrastructure adapted for permafrost (for now as well as for the future when climate change may trigger permafrost melt). This (globally) relatively new area of research has basic importance for the northern gas and oil energy projects in Russia and for the ecosystems it may impact, as inappropriate technologies (such as extensive land clearance, inadequate choice of construction materials) might result in habitat infringement and species composition changes in globally important Arctic species and in climate-caused infrastructure breakdowns and spill accidents.

Energy companies that work internationally have been exposed to new technologies and Best Management Processes, as well as to the international community's expectations regarding biodiversity conservation. But a systematic approach to creating an organizational culture of new technology and management processes has not occurred. Although knowledge and technology are important, a critical barrier is the management culture in both companies and agencies that at present is not geared to develop, manage and continually improve processes aimed at biodiversity conservation. This requires transparency and an internal culture of truthful monitoring and continuous process improvement or adaptive management strategies, risk assessment and strategy planning.

Global Environmental Objective

The global environmental objective of the project is to address the above barriers to mainstreaming biodiversity conservation considerations in energy sector operations in the project's demonstration areas. By removing these barriers, the project will generate global benefits by reducing negative impacts from the energy sector on the following target ecosystems:

- North-east Tundra (Nenetsk Autonomous Okrug): Characterized by Arctic ecosystems, Pechora Sea, coastal tundra, eastern-most habitat of migratory Atlantic salmon
- North Caspian Sea (Astrakhan and Kalmykia): Oligohaline ecosystems characterize the Northern Caspian; global center for diversity and endemism of members of the genus Salmo, especially the bull trout *Salmo trutta*)
- Eastern Siberian Taiga (Yakutia): WWF Global 200 Ecoregion, Arctic tundra-steppes in lake-beds; extremely resilient and globally valuable pinaceous and larch forests
- Sayany mountains (Khakassia and Kemerovo oblast): WWF Global 200 Ecoregion, Northern steppes in intermountain basins, Mountain Shoria, large boreal forest stands, and one of Russia's biodiversity centers located at the juncture of south taiga and mountain-steppe zones
- Sakhalin Island (Sakhalin oblast): harbors globally significant species such as the western gray whale (*Eschrictius robustus*), Steller's sea-eagle (*Haliaeetus pelagicus*) and Sakhalin taimen (*Parahucho perryi*)

Alternative Strategy

The Alternative Strategy is to strengthen the regulatory environment of the energy sector (oil, coal, and hydropower) to enable better integration of biodiversity conservation issues in sector operations through Outcome 1 of the project. The regulatory environment will be strengthened through the following outputs:

1. Capacity development workshops to transfer international best practices, experience and knowledge for all 3 sectors
2. Methodological guidelines that support application of the avoid-reduce-remedy-offset paradigm
3. Strengthening of EIA process:
   - Responsibilities for EIA process developed, tested through pilot projects, and adopted by the Ministry of Natural Resources and Ecology
   - EIA policy amended to include an ecosystem and biodiversity impact assessment process

4. Mapping (GIS-based) of areas sensitive to energy sector development in the demonstration regions/ oblasts of the project; integration of these maps into ongoing territorial planning process in all regions with a heavy emphasis on energy industry
5. Statistical, corporate, and market reporting requirements to include company expenditures on, and effectiveness of, biodiversity conservation measures

Outcome 2 will focus on piloting biodiversity mainstreaming into oil sector operations in the Nenetsk, Northern Caspian and Sakhalin demonstration areas. Outcome 3 will pilot biodiversity mainstreaming into hydropower operations in Yakutia. Outcome 4 will pilot biodiversity mainstreaming in coal mining operations in the Khakassia and Kemorovo demonstration areas. Outcomes 2, 3 and 4 are sectoral in scope and focus on removing regulatory, knowledge and experiential barriers to mainstreaming in each specific sector. In the baseline scenario the level of technologies/ practices being followed in the sectors are not adequate in terms of minimizing impacts on biodiversity. There are leaders in each sector that drive technological modernization and search for better practices that minimize adverse impacts on biodiversity (primarily due to international investment interests, involvement of international partners in management, requirements of lenders, and such). However, other companies – majority of which are in the local market – are not following suit and adopting these improved practices. The project will, therefore, collaborate with the leading, most advanced companies that currently operate above the "baseline level" to establish higher standards throughout the sectors/ regions and to reduce market and information barriers for specific biodiversity-friendly technologies (for example through requirements for full-cost economic assessments, incremental costs assessment). Each of the sectoral outcomes/ components is designed with a similar structure covering drafting of compendiums, modifications to regulations and corporate standards, biodiversity impact assessments, demonstration of biodiversity risk mitigation measures, demonstration of biodiversity offsets, reducing barriers to alternative biodiversity-friendly technologies, and scaling up and dissemination of lessons learned.

Scope of Analysis

The temporal scope of the analysis is the 5 year implementation period of the project (2011-2016). The geographical scope is the administrative regions where the project's demonstration activities will be focused namely Nenetsk, Kalmykia, Astrakhan, Khakassiya, Kemerovo, Yakutia and Sakhalin. The thematic scope is the oil, coal and hydropower sectors and their current handling of environmental issues.

Costs of Baseline and Alternative Strategy

According to data of the Federal Service for State Statistics, in 2008, enterprises and organizations of all types of ownership in the demonstration regions of the project (Nenetsk, Kalmykia, Astrakhan, Khakassiya, Kemerovo, Yakutia and Sakhalin) spent approximately USD 263 million on conservation of water resources, air protection, construction of industrial waste processing and disposal units, and construction of facilities and landfills for disposal, processing and storage of wastes. Based on this, it is estimated that in the baseline scenario, over the next 5 years, baseline investments would amount to approximately USD 1.3 billion. However, this baseline investment will not be able to address threats to globally significant biodiversity harbored in the demonstration areas. Therefore, the project will be undertaking the barrier-removal measures outlined in the Alternative Strategy section above. The cost of this is estimated at USD 39,330,000. Of this cost, USD 32,130,000 will be provided by cofinancing and USD 7,200,000 will be covered by GEF resources.

Incremental Cost Summary Matrix

	Baseline	Alternative	Increment
Benefits	Air and water pollution, habitat fragmentation and destruction from oil and gas, coal mining and hydropower operations	Energy sector development continues but with added measures to avoid-reduce-remedy-offset impacts on biodiversity	Improved conservation prospects of globally important ecosystems and species
Costs	Expenditures on conservation of water resources, air protection, construction of industrial waste processing and disposal units, and construction of facilities and landfills for disposal, processing and storage of wastes in Nenetsk,	Add-on, barrier-removal measures: Capacity development workshops to transfer international best practices, experience and knowledge for all 3 sectors Methodological guidelines that support application of the avoid-reduce-remedy-offset paradigm Mapping of areas sensitive to energy sector	Incremental cost: USD 39,330,000 GEF: USD 7,200,000 Cofinancing: USD 32,130,000

	Baseline	Alternative	Increment
	Kalmykia, Astrakhan, Khakassiya, Kemerovo, Yakutia and Sakhalin (USD 1.3 billion)	development in the demonstration regions/ oblasts of the project; integration of these maps into ongoing territorial planning process in all regions with a heavy emphasis on energy industry Strengthening of EIA process Statistical, corporate, and stock-market reporting requirements to include company expenditures on, and effectiveness of, BD conservation measures Sectoral guidelines and pilot demonstrations of mainstreaming in the 6 pilot areas covering oil, hydropower and coal sectors (USD 1,339,330,000)	

Annex J: Terms of Reference

Position Titles	$/ person week	Estimated person weeks	Tasks to be performed
For Project Management (only local/ no international consultants)			
Local			
Project Manager (50% of time)	923	260*50%=130	• Supervise and coordinate the project to ensure its results are in accordance with the Project Document and the rules and procedures established in the UNDP Programming Manual • Assume primary responsibility for daily project management - both organizational and substantive matters – budgeting, planning and general monitoring of the project • Ensure adequate information flow, discussions and feedback among the various stakeholders of the project • Ensure adherence to the project's work plan, prepare revisions of the work plan, if required • Assume overall responsibility for the proper handling of logistics related to project workshops and events • Prepare, and agree with UNDP on, terms of reference for national and international consultants and subcontractors • Guide the work of consultants and subcontractors and oversee compliance with the agreed work plan • Maintain regular contact with UNDP Country Office and the National Project Director on project implementation issues of their respective competence • Monitor the expenditures, commitments and balance of funds under the project budget lines, and draft project budget revisions • Assume overall responsibility for meeting financial delivery targets set out in the agreed annual work plans, reporting on project funds and related record keeping • Liaise with project partners to ensure their co-financing contributions are provided within the agreed terms • Assume overall responsibility for reporting on project progress vis-à-vis indicators in the logframe • Undertake any other actions related to the project as requested by UNDP or the National Project Director
Administrative Assistant	577	260	• Ensure the proper day-to-day functioning of the PMCU by supervising the provision of all necessary supplies and services including maintenance contracts, office supplies and communications. He/she will supervise the Financial Assistant. He/she shall be responsible for the proper running and upkeep of the PMCU hardware including the computers, copiers, etc. • Prepare draft budget revisions and working budgets in consultation with the UNDP and PM; • Assist all the PMCU staff with personnel matters relevant to the performance of official duties. This work, with support from the FA, will include organization of project-related travel for PMCU staff. The incumbent will also supervise keeping records of time and attendance and informing staff of vacation periods and any other UNDP-related administrative functions as required by the PM. • Undertake all duties relevant to local procurement, with

Position Titles	$/ person week	Estimated person weeks	Tasks to be performed
			support of the FA. He/she will maintain records of suppliers, obtain competitive bids for the consideration of the PM and complete the relevant documentation including that pertinent to the tax status of the PMCU. He/she will arrange for customs clearance if required. He/she will maintain precise records of all goods purchased and for maintaining proper equipment inventories as well as for ensuring the proper labeling and recording of equipment delivered to the field. • Maintain the project's disbursement ledger and journal & keep files with project documents, expert reports. • Draft correspondence and documents; finalize correspondence of administrative nature; edit reports and other documents for correctness of form and content. • Act on telephone inquiries, fax, post and e-mail transmissions, and co-ordinate appointments. • Perform any other administrative/financial duties as requested by the PM.
Accountant	461.5	260	• Provide general administrative support to ensure the smooth running of the PMCU. • Project logistical support to the AA and PM and project consultants in conducting different project activities (trainings, workshops, stakeholder consultations, study tours). • Prepare and maintain the records of project accounts. He/ she shall prepare all relevant documents for administering the accounts for final approval by the PM, in conformity with the stipulations of the financial regulations of the executing agency. He/she shall prepare bank reconciliation and records of total project expenditure including where possible, full records of co-financing contributions to the project. • Monitor Project expenditures with reference to the approved budget. He/she will prepare budget proposals and also attend to all financial & budgetary aspects of project implementation. • Review of the executing agency finance records of expenditures against MODs and budget lines. • Assist the PM to prepare special budget and financial statements for Steering Committee and to regularly brief the PM on the financial status of the project. • Review incoming authorizations to ensure adequate recording against budget lines. • During the visits of expert consultants, bear the responsibility for their support, transportation, hotel accommodation etc. • Assist the control of budget expenditures by preparing payment documents, and compiling financial reports.
IT support part time	461.5	130	• IT support to PMU (set up office networks, maintenance of office equipment and software, troubleshooting) • Design and maintenance of the project website, update information on the website, exchange information with websites of partner organizations
• For Technical Assistance			

Position Titles	$/ person week	Estimated person weeks	Tasks to be performed
Local			
Project Manager (50% of time for technical inputs)	923.1	260*50%=130	• Provide technical advice and input to the Senior Technical Advisor's work when required • Facilitate, oversee and ensure robust multi-sectoral aspects of the project's work in all of its technical areas under Components 1, 2, 3 and 4. • Interact on a technical level with other relevant regional biodiversity mainstreaming initiatives
Senior Technical Advisor	923.1	260	• Supervise and coordinate the project's technical work to ensure its results are in accordance with the Project Document and the project's Results Framework and its specific indicators of success • Oversee the work of the Pilot Site Technical Experts (PSTEs) • Provide overall technical guidance and consistency of strategic vision for project implementation • Lead the work on reforms to the EIA process to include an ecosystem and biodiversity impact assessment process • Review the inputs and recommendations of the 3 Policy Experts for each energy sector and ensure harmonization and consistency across sectors • Ensure that technical requirements are adequately covered in the Terms of Reference for consultants and subcontractors • Guide the work of consultants and subcontractors and oversee compliance with the agreed work plan • Ensure timely and comprehensive project risk assessment and development of risk mitigation strategy, and documentation of lessons learnt • Develop partnerships with other energy companies in order to lay the ground for replication of the project strategy • Lead discussions in all regions with a heavy emphasis on energy industry to integrate mapping of areas sensitive to energy sector development into ongoing territorial planning process based on project's experience with mapping exercise in the 6 demonstration regions • Foster and establish technical best-practice links with other related initiatives to mainstream biodiversity in energy sector operations in the region and beyond
Pilot Site Technical Experts (6; 1 per pilot site)	461.531	260*6	• Work closely with stakeholders, consultants, and contractors in each pilot site to implement technical demonstration projects efficiently, effectively, and in a participatory manner • Oversee biodiversity impact assessment and the identification of biodiversity risk mitigation measures in the pilot site and ensure that thorough and extensive consultations are held • Report on progress in the pilot site against the indicators in the project's logical framework
Policy Expert for Oil Sector	692.31	260	• Serve as the main liaison between the project and the international industry association for the sector; and keep abreast of best available technologies and best management practices for reducing impacts of the energy sector on biodiversity

Position Titles	$/ person week	Estimated person weeks	Tasks to be performed
			• Provide intellectual leadership for the knowledge transfer workshop for the oil sector (Component 1) • Lead the work on the development of methodological guidelines to support implementation of the "avoid-reduce-remedy-offset" approach for the oil sector (Component 1) • Provide inputs on how to strengthen statistical, corporate, and stock-market reporting requirements of oil companies to include company expenditures on, and effectiveness of, biodiversity conservation measures (Component 1) • Lead the work on development of a compendium of best management practices for the sector (Output 2.1) • Lead the work on collation and dissemination of lessons learned (Output 2.3)
Policy Expert for Hydropower Sector	692.31	260	• Serve as the main liaison between the project and the international industry association for the sector; and keep abreast of best available technologies and best management practices for reducing impacts of the energy sector on biodiversity • Provide intellectual leadership for the knowledge transfer workshop for the hydropower sector (Component 1) • Lead the work on the development of methodological guidelines to support implementation of the "avoid-reduce-remedy-offset" approach for the hydropower sector (Component 1) • Provide inputs on how to strengthen statistical, corporate, and stock-market reporting requirements of hydropower companies to include company expenditures on, and effectiveness of, biodiversity conservation measures (Component 1) • Lead the work on development of a compendium of best management practices for the sector (Output 3.1) • Lead the work on collation and dissemination of lessons learned (Output 3.3)
Policy Expert for Coal Sector	692.31	260	• Serve as the main liaison between the project and the international industry association for the sector; and keep abreast of best available technologies and best management practices for reducing impacts of the energy sector on biodiversity • Provide intellectual leadership for the knowledge transfer workshop for the coal sector (Component 1) • Lead the work on the development of methodological guidelines to support implementation of the "avoid-reduce-remedy-offset" approach for the coal sector (Component 1) • Provide inputs on how to strengthen statistical, corporate, and stock-market reporting requirements of coal companies to include company expenditures on, and effectiveness of, biodiversity conservation measures (Component 1) • Lead the work on development of a compendium of best management practices for the sector (Output 4.1) • Lead the work on collation and dissemination of lessons learned (Output 4.3)
Communication Specialist	594.23	260	• This specialist will be expected to provide technical services in terms of facilitating coordination between

Position Titles	$/ person week	Estimated person weeks	Tasks to be performed
			national and regional level representatives of government departments, oil, hydropower and coal sector representatives, other land users, NGOs and other stakeholders to ensure that all necessary consultations for realizing project outcomes are efficiently and effectively concluded. This can take the form of facilitation of formal meetings and workshops, as well as informal, bilateral discussions. This will also require drafting of reports as background for consultations, ensuring that inputs from different technical experts build towards the common goal of mainstreaming biodiversity into energy sector operations, and undertaking appropriate follow-up.
Business Engagement Specialist	692.31	260	• This specialist will serve as the focal point for coordination with the business community on various project outputs under the guidance of the Senior Technical Advisor
Community engagement and stakeholder consultations expert	461.54	260	• This expert will take the lead on designing and conducting consultations with locall communitie/ indigenous people in the demonstration areas in relation to impact assessment of nergy operations and the design and implementation of biodiversity risk mitigation measures.
GIS Specialist	461.54	208	• Assist with the mapping of areas sensitive to energy sector development in the demonstration regions/ oblasts of the project
Evaluation Specialist	500	20	• Support the international evaluation expert on the project's mid-term and final evaluation in line with the standard UNDP TORs for such evaluations
International			
Expert on Ecosystem Assessment/ Management	3000	15	• In pilot sites, lead the work on (i) understanding ecosystem function based on natural disturbance regimes, (ii) modeling the expected changes to the ecosystem based on predicted climate change, (iii) identifying how much disturbance the biodiversity in the ecosystem can withstand, (iv) identifying best management practices that can be integrated into the policies and practices of the energy operator and that address the disturbance caused by the energy project most effectively so as to lead to no net loss of biodiversity, and (iv) enshrining this in an implementation plan for biodiversity risk mitigation measures. • Under Component 1, provide inputs to the process of amending EIA policy to include an ecosystem and biodiversity impact assessment process; maintain link between pilot site experience and process of policy development.
Consultants on Mainstreaming Biodiversity Impact Assessment and Conservation into Business Practices and Government Policies (*3 sectors)	3000	90	• In each pilot site, facilitate the development of a practical and implementable agreement between the energy operator and the relevant government authority on implementation of biodiversity risk mitigation measures; work to be carried out in close collaboration with Expert on Ecosystem Assessment/ Management. • Provide an in-depth understanding of what it takes to make such an agreement work within the working culture of private energy operators involved as well as the public and technical partners. • Support the integration of best management practices into

Position Titles	$/ person week	Estimated person weeks	Tasks to be performed
			energy company policy and actual business practices in the pilot sites. • Support the integration of best management practices into the government EIA process developing strong linkages between government regulatory process and implementation of best management practices by companies. • Support the development of a standard statistical reporting process for energy companies to report on cost and effectiveness of biodiversity conservation practices (Output 1.5).
Evaluation Consultant	3000	20	• Lead the mid-term and the final evaluations, in close collaboration with the local evaluation consultant in order to assess the project progress, achievement of results and impacts • Develop the draft evaluation report, discuss it with the project team, government and UNDP, and as necessary participate in discussions to extract lessons for UNDP and GEF (based on standard UNDP/GEF project evaluation TORs)
International Consultant on Economic Valuation of Environmental Impacts	3000	10	• In close cooperation with the International Expert on Ecosystem Assessment/ Management and the National Expert on Economic Valuation of Environmental Impacts, develop a standardized process for assessing biodiversity impacts of energy projects and assigning economic values in accordance with international standards (Output 1.2)
International GIS Consultant	3000	15	• In collaboration with the national GIS Expert, take the lead on developing the GIS-based system for assessment and mapping of ecosystem sensitivity to industrial investments (Output 1.4) (system compatible with WCMC's IBAT)

SIGNATURE PAGE

Country: Russia

UNDAF Outcome (s)/Indicator (s): NA

CPAP Outcome (s)/Indicator (s): NA

CPAP Output (s)/Indicator (s): NA

Implementing partner: Ministry of Natural Resources and Environment
(Designated institution/Executing agency)

Programme Period: 2010-2015 **Atlas Award ID:** 00060984 **Atlas Project ID:** 00077026 **PIMS:** 4241 **Start date:** March 2011 **End Date:** March 2016 **LPAC Meeting Date:** t.b.d **Management Arrangements:** NIM	**Total budget** USD 39,150,000 **Total allocated resources (cash)**: Partner managed USD 31,420,000 (Details in Total budget and Work Plan section) UNDP managed o GEF USD 7,200,000 o UNDP USD 530,000

***Agreed by (Government)**:*

NAME SIGNATURE Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

NAME SIGNATURE Date/Month/Year

Agreed by (UNDP):

NAME SIGNATURE Date/Month/Year