



Country: Russian Federation, Mongolia

PROJECT DOCUMENT

Project Title: Integrated Natural Resource Management in the Baikal Basin Transboundary Ecosystem

UNDAF Outcome(s):

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:

UNDP Strategic Plan Secondary Outcome:

Expected CP Outcome(s):

(Those linked to the project and extracted from the country programme document)

Expected CPAP Output (s)

Those that will result from the project and extracted from the CPAP)

Executing Entity/Implementing Partner: United Nations Office for Project Services (UNOPS)

Implementing Entity/Responsible Partners: MNRE – Russia; MNET – Mongolia

Brief Description: Building upon a solid baseline of bilateral cooperation between Russia and Mongolia on the transboundary waters of the Selenga River and on the growing economic baselines of the mining and tourism sectors, GEF support will catalyze the development and implementation of a Strategic Action Programme (SAP) for the transboundary management and conservation of the Baikal Basin's aquatic ecosystems. The project will also support efforts from both national and local governments and civil society to mainstream biodiversity conservation measures into mining and tourism sector policies and practices and watershed management planning, leading to improved management of biodiversity and aquatic ecosystems across 11,047,790 hectares. The project's objective is to spearhead integrated natural resource management of Baikal Lake Basin and Hövsgöl Lake ensuring ecosystem resilience, reduced water quality threats in the context of sustainable economic development. The project has three primary components: elaborating a strategic policy and planning framework; strengthening institutional capacity for IWRM; and demonstrating water quality and biodiversity mainstreaming practice, including groundwater monitoring and protection.

Programme Period:	_____	Total resources required:	53,186,169
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PIMS #	4347	Foundation for the Protection of Lake Baikal	3,387,097
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End Date	Dec 2014	UNESCO	315,000
Management Arrangements	Agency Execution	In-kind contributions:	
PAC Meeting Date	15 February 2011	National Governments	15,161,290
		Regional Governments	30,124,782

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Acronyms

AMD	acid mine drainage
APR	Annual Project Review
ASM	artisanal small mining
BAT	Best Available Techniques
BEP	Best Environmental Practices
BB	Baikal Basin
CP	Country Programme
DOC	dissolved organic carbon
EB	Ecosystem-based
EBM	Ecosystem-based Management
EBRD	European Bank for Reconstruction and Development
EEA	European Environment Agency
EFH	Essential Fish Habitat
EIA	Environmental Impact Assessment
ERA	Ecological Risk Assessment
FAF	Federal Agency on Fishing, Ministry of Agriculture (Russian Federation)
FAO	Food and Agriculture Organization
FBE	Fisheries and Bioresources Expert
GDP	Gross Domestic Product
GRID	Global Resource Information Database
GEF	Global Environment Facility
GOIN	State Oceanographic Institute (Russian Federation)
IFI	International Funding Institutions
IMCM	Inter-Ministerial Coordination Mechanism
IW	International Waters
IWC	GEF Biennial International Waters Conference
IWEN	International Waters Experience Notes (GEF)
IWRM	Integrated Water Resources Management
LBB	Lake Baikal Basin
METT	Management Effectiveness Tracking Tool
M&E	Monitoring and Evaluation
MNET	Ministry of Nature, Environment and Tourism (Mongolia)
MNRE	Ministry of Natural Resources and Ecology (Russian Federation)
MNT	Mongolian Tugrik (currency)
MoT	Ministry of Transport (Russian Federation)
NC	National Coordinator
NFP	National Focal Point
NWC	National Water Committee
PA	Protected Area(s)
PIMS	Project Information Management System
PMU	Project Management Unit
POC	Particulate Organic Carbon

POPs	Persistent Organic Pollutants
PTS/POPs	Persistent Toxic Substances/Persistent Organic Pollutants
PUTW	Protection and Use of Transboundary Waters (Bilateral agreement)
QA	Quality Assured
RAS	Russian Academy of Sciences
RCU	Regional Coordinating Unit (UNDP-GEF in Bratislava)
RF	Russian Federation
SAP	Strategic Action Programme
SC	Steering Committee (of the project)
SEIS	Shared Environmental Information System (European Environment Agency)
TA	Technical Assistance
TCF	Taimen Conservation Fund
TDA	Transboundary Diagnostic Analysis
TMF	tailings management facility
UEMP	Unified Ecosystem Monitoring Program
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNESCO	United Nations Education, Science and Cultural Organization
UNOPS	UN Office for Project Services
USAID	US Agency for International Development
VNIRO	Russian Federal Research Institute of Fishery and Oceanography
WB	World Bank

SECTION I: ELABORATION OF THE NARRATIVE

PART I: Situation Analysis

1.1 Context and global significance

1. Lake Baikal's global significance can hardly be over-stated. It is the world's oldest (>25 million years), deepest lake (1,642 m). With 20% of the Earth's unfrozen fresh water, it is the world's most voluminous lake (23,600 km³), containing more water than all five of North America's Great Lakes combined. The length of the lake is 636 km and width ranges from 80 to 27 km. The waters of Lake Baikal are famous for their crystal clear clarity, which reaches 40-50 meters in some areas. The residence time of water flowing into Lake Baikal is over 300 years. Located on Baikal's western shore, the Angara River is Baikal's only outlet. The region's largest city, Irkutsk, is located on the Angara.

2. The diversity of flora and fauna found in Lake Baikal is higher than any other freshwater lake in the world. An estimated 40% of the lake species are still undescribed. Eighty-five percent of the known 2,565 described animal species (Timoshkin 1995) and 40% of the 1,000 plant species are endemic (Bondarenko et al. 2006a). The world's only fresh-water seal, the Nerpa or Baikal seal (*Phoca sibirica*), is the largest animal endemic to Lake Baikal.

3. The diversity of Baikal's native fish fauna is currently represented by 55 species and 15 families. Two deep-water species, the large and small Baikal oilfish (*Comephorusbaicalensis* C. dybowski), are the most numerous fish in Lake Baikal and inhabit the water mass of the lake down to the depth of 1,000 m. These Baikal endemics can only live in cold water ranging from 3° - 13°C. The endemic Baikal omul (*Coregonus autumnalis migratorius*) was historically the main target fish for local fishermen. The endemic Baikal sturgeon (*Acipenser baerii baicalensis*), with an average lifespan of more than 60 years and maximum weight of 130 kg, is listed in the Red Books of the Russian Federation (RF), Republic of Buryatia (RoB), and Mongolia. The Baikal sculpin (*Cottocomephorus grewingkii*) lives in shallower coastal waters (25-300 m) and spawns near the shore. The endemic Long-winged goby (*Cottocomephorusinermis*) lives in the water depths down to 500 m.

4. The presence of oxygen down to its deepest depths explains this impressive level of diversity. Baikal is unique among the Great Lakes of the world in that there is fish life from its surface to its greatest depth of over 1600 meters. In contrast, the other deep rift valley lakes in Africa are permanently anoxic below depths of 100 - 200 meters. The shallow water fishes of Baikal are very similar to those of surrounding water bodies. What makes Baikal unique is its diverse assemblage of sculpins (Cottoidei), nearly all of which are in deep water and endemic. Baikal's great habitable depth range, combined with its great age, make it unique natural laboratory for the study of adaptation to deepwater conditions.

5. The lake also hosts rich invertebrate fauna, harboring 255 species of shrimp-like amphipod species and 80 species of flatworm. Turbellarian worms account for no less than 70 species, 90% of which are endemic and live in the open waters of Baikal. These Baikal endemics are widespread forms and constitute critical links in the food chain. The copepod *Epischura baicalensis* Sars, constitutes 90-99% of the total biomass in the lake depending upon the season of the year.

6. The rare and disappearing fish species include the Frolikh char, Baikal sturgeon, the Baikal white grayling (*Thymallus arcticus brevipinnis*), tench and taimen, *Abyssocottus elochini* Taliev and the Dwarf sculpin (*Procottus gurwici* Taliev). The char, sturgeon and grayling are included into the Red Books of the RF [1983] and Buryatia [1988]. Taimen and tench have been listed in the Red Book of Buryatia [1988]. The Frolikh char (*Salvelinus alpinus erythrinus*) is the first species that disappeared from the fish fauna of Baikal. It used to be found in the northern part of the lake as far as Chuvyrkui Bay. No cases of Frolikh char in Lake Baikal have been registered in 40 years. A fifty-year ban on catching Baikal sturgeon has produced no positive effect on the population. Moreover, in the past few years the Selenga Experimental Sturgeon and Omul Breeding Factory has failed to catch sturgeon sires in numbers sufficient for artificial breeding.

7. The largest trout species in the world, the taimen (*Hucho taimen*), can be found throughout the Baikal Basin, although the health of its populations vary widely from being nearly extirpated in the Russian portion of the basin to healthy populations in the upper reaches of the Mongolian portion of the Basin. It is known to live over 50 years and achieve a maximum weight of 100 kg and length of two meters. The taimen is listed in the Red Books of Mongolia and the Republic of Buryatia as “Endangered.” Other cold-water fish species found in the rivers of the Baikal Basin include: The lenok (*Brachymystax lenok*), the Arctic grayling (*Thymallus arcticus arcticus*), Eurasian minnow (*Phoxinus phoxinus*) and Arctic cisco (*Coregonus autumnalis*), with taimen as the top predator. The lenok is listed in the Red Books of Buryatia and Irkutsk Oblast. It too is found throughout the Baikal basin. Both the taimen and lenok are favorites of recreational and subsistence fishers.

8. Over three hundred and sixty rivers and streams flow directly into Lake Baikal. The diversity of fish species found in a river depends upon the river’s size and hydraulic features. Shallow swift rivers up to 10 km long are generally populated by grayling, minnow, spotted sculpin and Siberian loach. Rivers up to 50-80 km long additionally include lenok, burbot, and dace. In rivers over 80 km long the fish fauna structure increases to > 15 species due to the family Cyprinidae.

9. Wetlands within the greater Baikal Basin, including Baikal’s Selenga Delta, are home to a significant array of migratory bird species. Large concentrations of migrating, breeding and moulting waterbirds assemble at the wetlands in the Selenga Delta. The total number of birds passing through the Selenga Delta is approximately 5,000,000 per year. A number of bird species listed in the Russian Red Data Book occur in the delta, including: Siberian crane (*Grus leucogeranus*), Black stork (*Ciconia nigra*), Bewick's swan (*Cygnus bewickii*), Swan goose (*Anser cygnoides*), Imperial eagle (*Aquila heliaca*), Golden eagle (*A. chrysaetos*), Peregrine falcon (*Falco peregrinus*), Gyr falcon (*F. gyrfalco*), Saker falcon (*F. cherrug*), White-tailed eagle (*Haliaeetus albicilla*), Snipe-billed godwit (*Macrorhamphus semipalmatus*), Dalmatian pelican (*Pelecanus crispus*), Oriental stork, (*Ciconia boyciana*), Pallas's fish-eagle (*Haliaeetus leucoryphus*).

10. In 2008, the Russian Government declared Lake Baikal to be one of the “Seven Wonders of Russia.” UNESCO declared Lake Baikal and the adjoining areas to be a “World Natural Heritage Site” in 1996 in recognition of its biodiversity and high level of endemism among its flora and fauna. The Selenga Delta, Lake Baikal’s largest wetland area and one of the largest freshwater deltas in the world, was added to the RAMSAR list of international wetlands in 1994.

11. The Baikal Basin: Although Lake Baikal is located entirely in Russia, the Baikal Basin is a transboundary ecosystem encompassing over 500,000 km² shared between Russia and Mongolia, with over 400 rivers and streams. See Figure A. The Selenga River is a major transboundary water system in the heart of Asia, and the biggest tributary to Lake Baikal.

On average it brings 30 km³ of water annually to the Lake, equalling nearly 60% of the total inflow to the Lake. Forty-six percent of the annual run-off of the Selenga river is generated in Mongolia. The catchment area of the Selenga River is 447,060 km², of which 148,060 km²(33%) is within Russia and

Figure A: Map of the Transboundary Baikal Basin



67% within Mongolia. The Selenga Basin comprises over 80% of the Baikal Basin, illustrating the importance of Mongolia to the lake's long term ecological health. The Selenga Delta of Lake Baikal is one of the world's largest fresh water deltas occupying 680 km².

12. Lake Hövsgöl, also one of the large ancient lakes of Asia, is located in northern Mongolia. Hovsgol and Baikal are sister lakes, both formed from the same rift in the Earth's crust. Estimated to be at least five million years old, Hövsgöl is Mongolia's largest freshwater lake and the 16th largest naturally formed lake in the world by water volume. A remote, high mountain lake, it contains 60% of the freshwater of Mongolia and is a constant source of clean freshwater flowing to the Selenga River through its outflow the Egiin gol (river). Though the diversity of the plant and animal groups is not high and the level of endemism does not approach that of Baikal, it has a unique flora and fauna. Lake Hövsgöl was designated in 1992 as a national park, comprising 900,000 ha of the southern limit of the Siberian taiga forest. The lake is characterized by high levels of dissolved oxygen, high transparency and low levels of nutrients and organic carbon. Its biodiversity is more modest than Baikal, due its water properties, higher elevation and harsher environment.

Overview of protected areas in the Baikal Basin (BB): highlighting the need for mainstreaming action.

13. Protected areas in the Baikal Basin will form an important part of any integrated natural resource management plan that seeks to maximize ecosystem resilience and promote conservation-friendly economies across the BB. Thirty-three percent of Lake Baikal's basin within Russia lies within protected areas (PA). Russian Government have set a special protection regime within the boundaries of Baikal Nature Territory established in 2006 (386 000 sq. km belting the Baikal lake with up-to 200 km protection zone). The core zone of the Baikal Nature Territory include the Baikal watershed protection zone and a network of federal and regional protected areas. Economic activities within the core and buffer zones of the Baikal Nature Territory are limited to environmentally friendly options. In this context the Protected Areas play an important role in the land use within the Baikal Nature Territory as centres for both biodiversity conservation and ecotourism development providing viable economic alternatives to local population. Russian government prioritized tourism development in the Russian portion of the Baikal basin with a focus on tourism development potential in and around the Baikal protected areas. In 2010 a large investment programme has been approved for federal protected areas focusing on the tourism development in key reserves where three Baikal nature reserves were identified among priority PAs. Tourism development investments for these protected areas were approved for 2011-2013. Therefore, the Baikal protected areas in the Russian part of the Baikal basin will be included in this mainstreaming project as important regional land use and tourism development entities. In Mongolia, 8.5% of the Selenga Basin lies within PA (24,800 km²). The total area of PA coverage in the transboundary Baikal Basin (BB) constitutes at most 17% of the entire transboundary Basin territory. On the Russian side of the basin, the level of land and water protection varies with each province: 80% of Irkutsk Oblast (1.12 million ha) located within the BB is protected, constituting an almost uninterrupted belt along the western shoreline. Ten percent of the Republic of Buryatia's territory within the BB (3.6 million ha) is protected. The landscape along the shoreline of Lake Baikal itself is well protected. However, the remaining part of the Basin is less so, as is the actual water area of the Lake itself.

14. In Mongolia's portion of the BB, PA are distributed mostly around the periphery of the Selenga Basin in the upper mountainous areas. Lake Hovsgol and Khangai Nuruu National Parks are two examples of this. There are practically no PA in the central area of the Selenga Basin, where most of Mongolia's largest settlements and largest rivers and streams are located.

15. There has never been a joint assessment of PA coverage across the BB involving both Mongolia and Russia and what this coverage means when goals are shifted from "conserving biodiversity" to "maximizing ecosystem resilience." This kind of analysis will be important under a Strategic Action Programme planning process as stakeholders seek to maximize ecosystem resilience in the BB. This is a critical gap in the development of a long-term transboundary conservation initiative for Lake Baikal – particularly one that mainstreams biodiversity conservation objectives into larger economic imperatives.

16. A preliminary analysis done under the PPG indicates that riparian and aquatic areas are some of the least represented in PA across the BB basin, illustrating the need for mainstreaming action affecting the aquatic ecosystems not protected nor ever likely to be protected. For example, there are important gaps in the conservation of Baikal's aquatic and coastal zones. In particular, two main river deltas on Baikal – the joint delta of rivers V. Angara and Kichera, as well as delta of Selenga river lack protection in the traditional PA sense for their surface and ground water, as well as to conserve important habitat for migratory birds, waterfowls and hydrophilic species of flora and fauna. This kind of analysis highlights the need for more mainstreaming action.

17. As climate change continues to affect the Baikal region, there is a need to broaden and even re-frame conservation priorities in light of the pressing priority to not only conserve biological diversity but also to strengthen the resilience of the BB ecosystem. Mainstreaming, along with traditional PA, will be two important biodiversity conservation tools for stakeholders seeking to maximize ecosystem resilience and promote biodiversity-friendly economic alternatives.

1.2 Socio-economic Context:

18. The territory of the BB is complex in terms of its political and administrative arrangements. Political borders split the Basin practically in half between Russia and Mongolia. Within the BB there are 3 separate Russian states (Oblast, Krai and Republic) and 1 Autonomous Region; 12 different Mongolian states (Aimags); over 45 national parks, strict nature reserves and significant cultural sites in both regions; and over 25 counties (rayons) in Russia and 116 counties (soums) in Mongolia, 28 of which are divided by the Basin boundary.

19. Differences in economic development both among the Russian states of the BB and between the Russian and Mongolian portions of the Basin are significant. In 2008, Russia's GDP per capita was US\$11,832. In 2008, Mongolia's GDP per capita was US\$1,191¹.

20. Russian Portion of Baikal Watershed: The Russian side of the Lake Baikal Basin is comprised of three political regions within the Russian Federation: Irkutsk Oblast, Zabaikalsky Krai and the Republic of Buryatia. Buryatia harbors most of the Basin territory in the Russian Federation, with a significant part of the Selenga River watershed within its borders. Ulan Ude is the capital of Buryatia and is one of the largest cities in the Baikal Basin, next to the capital of Mongolia, Ulaan Baatar. The population of Buryatia in 2006 was 969,000 people. The percentage of the population in Buryatia living under the poverty level has decreased from 38% in 2004 to 30% in 2006, but is still nearly twice the national average. The ethnic composition of Buryatia is over 2/3 Russian and nearly 1/3 Buryat.

21. Despite a rising trend, the level of social development of the population in the Baikal region is lower than average in Russia by most indices (per capita income, unemployment and poverty) and there is a high rate of social and environmental related illness. In 2006 more than 10% of 36 cities in Russia with the highest air pollution were in Baikal region.

22. The population of the two administrative districts of Irkutsk oblast located in the BB is 56,000 people. These districts adjacent to Lake Baikal are characterized by low economic output and high levels of unemployment. Economic development in these districts is focused upon increasing tourism opportunities.

23. In Russia, both Irkutsk and Buryatia's economies are based upon natural resource exploitation (gold, coal, oil and gas, rare metals and timber). Irkutsk Oblast continues to be the base for economic development in the Russian Far East based upon energy and timber. One of the largest enterprises in Irkutsk is the Baikalsk Pulp and Paper Mill, located on the southern shore of Lake Baikal. Significant high quality larch and pine timber resources exist within the Baikal basin. The Russian portion of the

¹ <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

basin has over 20 million ha of forest (42% harvestable) and over 2.1 billion m³ of timber. The Mongolian portion has over 5 million ha of forest (30% harvestable) and over 500 million m³ of timber.

24. Tourism is a priority sector for future development within the Baikal Basin. Tourism in the region is expanding but often in a manner insensitive to the fragile ecology. Approximately 100,000 Russian tourists visited Lake Baikal in 2008. The number of tourists visits to Baikal is growing rapidly with some estimates at 30%/year and it is forecasted that by 2020 visitation will reach 1.5 million persons annually. Tourism is also expected to grow due to recent laws making it easier for Russians to purchase second homes around the lakeshore and due to international efforts to increase eco-tourism in the watershed. For example, the completed GEF Biodiversity Project funded over 100 different organizations working to develop environmental awareness projects with many providing eco-tourism opportunities as a side benefit. USAID also recently funded an effort to promote nature-based tourism at Baikal by developing the “Great Baikal Trail” around the lake intended as a worldwide draw.

25. In Mongolia, Lake Hovsgol is one of the country’s premier tourism destinations. Tourism overall has increased but visitation numbers to the BB are much lower than in Russia, with an estimated 6,000 tourists visiting Hovsgol each Summer. In addition, there is a small, but thriving seasonal, high-end barbless hook “catch and release” sport fishing sector operating on pristine rivers within Mongolia’s upper Selenga Basin.

26. In 2006 the Ministry of Economic Development of the Russian Federation decided to establish special tourism development zones within the BB in Irkutsk and Buryatia in order to diversify the economy, and reduce dependence of the region on mining and heavy industry. The tourist sector input in 2006 was only 0.5% of GDP. In Buryatia the same program will include environmental/ecological elements, such as trails and PA. The program seeks to decrease the level of unorganized tourism in the region (currently 60%), and reduce the stress on Baikal’s natural landscapes. A new national target programme on protection and socio-economic development of the Baikal Nature territory has been developed by the ministry of natural resources and environment in 2010 for implementation in 2011-2020. The programme envisages large investment into alternative sustainable economic options for local communities focussed on tourism and ecotourism development. The programme will finance tourism infrastructure and activities with the Baikal nature protected areas and regional/local administrations in the Baikal Nature Territory.

27. Despite these plans for diversification, mining, oil and gas dominate the economy of Buryatia. In 2006, the growth rate for mine extraction was 101% and the continued expansion of mining and industrial development in the region is almost certain. The mineral base includes over 700 deposits of gold, tungsten, uranium, molybdenum, beryllium, tin, and aluminum.

28. **Mongolia:** The Selenga Basin is the most developed region in Mongolia and is the centre of the country’s political, economic and cultural life. Approximately 67% of Mongolia’s total population (1.8 million people) lives in the Selenga Basin. The economy in northern Mongolia is based on agriculture, husbandry, and mining.

29. In 2007, Mongolia’s Selenga basin produced 81% of the national GDP (3,702.9 billion MNT at current prices or US\$2.9 billion). The mining sector is Mongolia’s single largest industry and a major contributor to the Mongolian economy, accounting for 65% of industrial value added, and 58% of export earnings. Mongolia’s mining sector is in the midst of a major expansion, having grown from 17% of GDP in 2004 to 28% in 2007 (US\$ 814 million). The formal mining sector employs over 12,000 people and the informal (artisanal) mining sector involves many times this number.

30. The mining industry’s output is largely based on copper and gold. Mongolia has only one copper mine (Erdenet), which earns about half of all foreign exchange and provides almost 25% of government revenues. Gold production comes mainly from placer operations (shallow alluvial concentrations of gold). In recent years, gold mining has emerged as one of the most dynamic (and potentially destructive) sectors of Mongolia’s economy. There are 42 licensed mines in the Zaamar gold field alone, located in the Yeroo sub-watershed. As of 1998, at least 25 other placer gold mines were

active in the same drainage area. This figure has almost certainly increased significantly in the past 10 years due in large part to the rapid growth of artisanal and small-scale mining (ASM).

31. ASM is not a longstanding traditional activity in Mongolia. During the past decade, it escalated from insignificance to being the main livelihood for tens of thousands of people, with estimates ranging from 30,000 - 100,000 participants nation-wide.² The agriculture sector exhibited consistent growth between 2003–2006, reaching 19% of GDP in 2006.

1.3 Threats to aquatic ecosystem health and barriers preventing them from being addressed.

32. **Climate Change:** Evidence of rapid climate change in the Baikal Basin, from Lake Baikal to Lake Hövsgöl, is now abundant. Annual air temperatures increased 1.2° over the last century, twice the global average, with winter temperatures increasing more (2°C) than those in summer (0.8°C) (Shimaraev et al. 2002). During the last 40 years, average temperatures in Mongolia have increased 2°C and the growing season has lengthened by a month. According to recent analyses of water temperature and ice cover, Lake Baikal is responding strongly to climate change (M. Moore et. al. 2009). Surface waters of Lake Baikal warmed rapidly and significantly to a depth of 25 m during the last 60 years (Hampton et al. 2008) and there is an observed warming trend in Baikal lake temperatures during the same six decades (+1.21°C since 1946). In addition, the ice-free season lengthened 18 days from 1869 to 2000, and ice thickness decreased 12 centimeters between 1949 and 2000 in the southern basin (Shimaraev et al. 2002). The changing climate has had significant effects on Hövsgöl Lake as well, with increased thawing of permafrost a likely factor in the severe 2002–2004 Asian Gypsy moth outbreak that devastated Larch saplings.

33. By the end of this century, the climate of the Baikal region will be warmer and wetter, particularly in winter, causing key abiotic variables to shift including ice cover and transparency, water temperature, wind dynamics and mixing, and nutrient levels. This shift will elicit many biotic responses. Among the abiotic variables, changes in ice cover will quite likely alter food-web structure and function most because of the diverse ways in which ice affects the lake's dominant primary producers (endemic diatoms), the top predator (Baikal seal), and other abiotic variables. Melting permafrost will probably exacerbate the effects of additional anthropogenic stressors (industrial and municipal pollution) and could greatly affect ecosystem functioning.

34. A variety of abiotic drivers strongly influence ecosystem processes in Lake Baikal, and the magnitude of their responses to climate change will largely determine how Baikal functions in the late 21st century. Key drivers include ice duration and transparency, water temperature, wind and mixing dynamics, and

Box 1: Ice duration and transparency¹.

Ice is possibly the single most important abiotic driver in Lake Baikal, because the lake's dominant primary producers and its top predator require ice for population growth. In temperate-zone lakes, the spring phytoplankton bloom begins shortly after ice off; but in Lake Baikal, the spring bloom occurs under the ice, and ice is essential for initiating and sustaining this bloom.

Large endemic diatoms (e.g. *Aulacoseira baicalensis*) frequently dominate the bloom, living and reproducing within the interstitial spaces of the ice and forming filaments more than 10 cm in length that hang from the ice into the water below. When currents dislodge the diatom filaments in the littoral zone, they form large flakes that sink and cover the substrate, likely providing an important food source for benthic animals, including gammarids and mollusks.¹

Therefore, reductions in both ice duration and thickness could adversely affect the primary productivity (PPR) of Lake Baikal's large endemic diatoms in early spring.

² May 2006. Mongolia: A Review of Environmental and Social Impacts in the Mining Sector. IBRD. Washington D.C.

nutrient loading. Box 1 summarizes how ice duration and transparency can influence ecosystem processes in Lake Baikal.

35. Pollution & Sedimentation: Environmental impacts within the BB are generated from numerous point and non-point pollution sources. The most significant air pollution sources are located to the west and north of Lake Baikal (downstream in the Irkutsk Oblast) and in several Russian industrial centers just south of the lake at Selenginsk and Ulan Ude (upstream along the Selenga River). Water pollution sources flow almost entirely into the southern portion of Lake Baikal from Russia and Mongolia, leaving the northern end of the lake relatively pristine. The BB ecosystem remains under threat from increased levels of nutrients, poisonous chemicals, persistent toxic substances, POPs, heavy metals and suspended solids are now observed in the Selenga Delta and coastal areas.

36. Water quality impairment from land-based activities, including point and nonpoint sources of pollution, pose an increasing threat to the Baikal aquatic ecosystem. Point source releases such as municipal and industrial waste water from the major conurbations (e.g. Ulan-Ude, Selenginsk, Irkutsk and Ulaan Baatar), placer gold mining, steel works and wood works and pulp and paper mills discharge significant amounts of pollutants into Basin ground and surface waters.

37. The environmental impacts of mining in the Baikal Basin. Mining is at the heart of the region's economic development trajectory and at the core of concerns related to adverse impacts to BB ecosystem health. These impacts range from dangerous contamination from toxic chemicals used by the mining industry either legally or illegally, changes to hydrological processes, and deterioration in water quality. Major pollution hot-spots within the BB are associated with mining operations, especially due to the use of inefficient and outdated mining technologies by artisanal and small mining (ASM) operations, haphazard regulatory enforcement, and rapid ill-managed expansion.

38. Contaminants released from mining include: cyanide, mercury, cadmium, lead, zinc, fluorine and chloride. All pose a serious threat to the Baikal Basin ecosystem as well as to human health. Mercury and other poisonous chemical pollution is a mounting problem and one of special concern. Used in artisanal and small gold mining activities mercury causes water quality impairment in several major rivers crossing Mongolia, especially the Boroo River, one of the main tributaries to the Selenga River and the mining of the Kholodninskoye lead-zinc pyrite deposit located at the border line of the BB region in Russia. Mercury was banned from gold mines in the former Soviet Union in 1982 and today is used illegally in only a few placer and hard-rock mines in Mongolia. However, illegal mercury usage is ubiquitous among ASM hard-rock gold miners and has begun to spread to ASM placer gold miners. Increasing ASM activities are impacting water quality in several rivers across the country. An increased risk exists of water-related infectious diseases due to unsanitary conditions of thousands of artisanal miners living by the rivers and streams, as well as toxic poisoning from gross pollution of surface and underground water by the uncontrolled burning of dung and rubber tires in order to melt the permafrost.

39. Methylmercury is a central nervous system toxin.³ Severe neurological effects have been seen in animals, where birds experienced severe difficulty in flying and exhibited other grossly abnormal behaviour. Mercury can also significantly affect kidney function and significant effects on reproduction are also attributed to mercury. Methylmercury poses a particular risk to the developing fetus since it readily crosses the placental barrier and can damage the developing nervous system. In birds, adverse effects of mercury on reproduction can occur at egg concentrations as low as 0.05 to 2.0 mg/kg.

40. *Changes in hydrological regime, erosion and sedimentation:* Changes in hydrological regimes remain a significant problem, particularly for placer mining. On balance, current mining practices are inefficient and use excessive water, overtaxing surface and ground waters and generating excessive effluent, which is difficult to manage and poses a threat of uncontrolled discharges of slurry. In addition, the illegal dredging of rivers or dumping of tailings into surface water increases the waters' turbidity, causing

³ Global Mercury Assessment. 2002. UNEP. Inter-Organization Programme for the Sound Management of Chemicals (IOMC) <http://www.chem.unep.ch/mercury/Report/Summary%20of%20the%20report.htm#Chapter5>

sedimentation and degradation of critical spawning grounds and critical invertebrate habitat in the benthic zone of surface waters.

41. The erosion of waste-rock piles and tailing repositories. Waste-rock piles and tailing repositories are a significant concern in large to medium scale mining operations. In Mongolia, most waste-rock piles from industrial mining are unstable and prone to erosion. Rainfall washes gravel and soil down into valleys, where valuable grazing land can become polluted and streams, rivers, deltas silted over, degrading the critical benthic zone and ultimately the Baikal near shore zone.

42. The environmental record of Mongolia's mining sector is mixed at best. Many ongoing operations are managed in a sub-optimal way leading to significant environmental damage and production losses. In addition, despite the fact that the sector's financial contribution to the economy is substantial, little has been done systematically to assess and address the costs of possible environmental damage from the sector's ongoing and planned activities. This is mostly due to a paucity of available data and to uncertainty about the long-term impacts of mining activities. The environmental impacts of mining in Mongolia are growing, although they are not specified and quantified in the Selenga Basin.

43. The development of mining operations and increasing urban populations within the BB have resulted in increased pollution of Selenga river tributaries such as the Tuul, Kharaa, Eroo, Orkhon and Chikoy. In 2006 approximately 400 gold-mining enterprises were registered in the Selenga basin, with many more unregistered. Pollution from mining is widespread and many mines have not invested in pollution avoidance techniques and equipment. In many cases, destructive mining practices modified river beds, creating suspended solids 5x permissible levels. At such sites critical aquatic invertebrate populations such as the stonefly (*Plecoptera*) and mayfly (*Ephemeroptera*) have disappeared. These organisms are critical food for fish and other invertebrates. High sediment levels from mining also causes the siltation of spawning grounds for key predator species (taimen, lenok, and grayling), drastically decreasing population numbers of these species in certain areas.

44. Forest areas have also been reduced during the last ten years, with approximately 40% of the total forested area of the Basin suffering anthropogenic impact in various degrees due to over cutting and anthropogenic fires. Particularly affected have been the forest islands in the forest-steppe.

45. In the case of Erdenet copper mine, the huge tailings management facility (TMF) is an enormous environmental risk. When current plans are completed, the TMF will contain over 1 billion metric tons of tailings material, thus making it one of the largest TMFs existing today. And it is located in the middle of the Selenga Basin. The dyke needs to be monitored for seepage and stability; however, limited staff and financial resources could be a serious constraint for the continuation of this activity. In addition, acid mine drainage (AMD) is becoming a growing concern in relation to TMF, particularly in Erdenet. There are ongoing discussions regarding the possibility of limiting the generation of AMD to controllable areas by directing the waste rocks to different dumps as a function of their acid-generating potential. Yet the timeline for these plans to become operational remains unclear and in the meantime, the danger that the Erdenet TMF poses to the Selenga River through ground water seepage and ultimately to Lake Baikal continues to grow.

46. Nutrient loading: Climate change will likely increase nutrient inputs (nitrogen and phosphorus) to Lake Baikal from both the Basin and atmosphere. This, together with higher temperatures, will enhance primary productivity (PPR). Scientists are predicting that increased spring runoff resulting from increasing winter precipitation, coupled with the thawing of the permafrost, will most likely increase the loading of nutrients, sediments, and dissolved organic carbon (DOC) and particulate organic carbon (POC) to arctic lakes (Wrona et al. 2006). These predictions can be extended to Lakes Baikal and Hovsgol, where permafrost is already melting throughout the Selenga Basin, a region that delivers more than 50% of the lake's surface water inputs and approximately 70% of all phosphorus inputs (Callender and Granina 1997). Enhanced inputs of allochthonous DOC and POC from Baikal's rivers (Yoshioka et al. 2002) due to climate change could be especially important because of the potential stimulation of the microbial food web and resultant increases in nutrient recycling and carbon processing (Wrona et al. 2006). The impacts of these on Baikal's ecosystem balance is unknown.

47. Atmospheric inputs of nutrients from forest fire ash are likely to increase in years to come. Summer forest fires have already increased in frequency and severity near Lake Baikal: seven of the years between 1998 and 2006 were considered extreme fire years in Siberia (Soja et al. 2007). In central Siberia, warmer and possibly drier summers are predicted to exacerbate the frequency and intensity of forest fires. Prevailing winds in central Siberia blow from west to east, potentially transporting ash and soot, both sources of nitrogen and phosphorus, to Lake Baikal. Despite Baikal's tremendous volume, nutrient inputs via atmospheric deposition or Baikal's rivers enter the relatively small relatively thin, oligotrophic epilimnion (>3% of total volume) and fuel PPR in the lake.
48. An important caveat to the projected increase in nutrient loading is that vegetation and human land use will also respond to a warmer, wetter climate, but it is unclear how these terrestrial changes will alter nutrient inputs to the lake 50 to 100 years from now. Substantial changes are projected by the end of the 21st century throughout the watershed, as dry forest ("light" taiga) dominated by Scots pine (*Pinus sylvestris*) and larch (*Larix* spp.) gives way to forest-steppe and steppe, and moist "dark" taiga dominated by fir (*Abies sibirica*) and cedar (*Pinussibirica*).
49. Current measurements of nutrients in the lake, and especially in its tributaries, are sparse and infrequent. More accurate nutrient budgets and monitoring data, in addition to tests for potential iron limitation and co-limitation by multiple nutrients, are essential for improving understanding of nutrient impacts in both Baikal and Hovsgol Lakes. Most evidence suggests that nitrogen is the nutrient that currently limits phytoplankton growth (Sekino et al. 2007). However, important spatial and temporal interplay of nutrients other than nitrogen (i.e., phosphorus, silica) can control life-cycle processes and population growth of Baikal's diatoms in complex ways (Jewson et al. 2008).
50. A significant source of water pollution into the Selenga and its tributaries is municipal sewage. Many of the larger cities in Mongolia and on the Russian side of the basin, have insufficient treatment systems, allowing poorly or untreated sewage to flow directly into surface waters. The sewage of the cities Darkhan, Zuunkharaa and Ulaan-Baatar are contaminating the waters in the Kharaa and Tuul rivers. The same situation could be observed in the Orkhon river basin, where in addition to the municipal discharges there is another source of pollution from municipal treatment facilities in Erdenet. The Tuul River downstream from Ulaan-Baatar has a BOD₅ five times the allowable limit (MNS-4586-98 water quality), and the content of ammonia nitrogen (NH₃-N) exceeds the standard 16 times. The level of NH₃-N in the Khangal River downstream of Erdenet city is 3x the limit.
51. Groundwater. As the primary source of drinking water groundwater plays a very important socio-economic role in both the Russian and the Mongolia parts of the Baikal Basin. Groundwater is inextricably linked to surface waters; indeed river systems extend underground for up to many hundreds of meters on either side of the surface water, depending upon the geological specifics of the location. Surface and groundwaters are closely connected across the Basin but have yet to be considered as a unified hydrological system.
52. There are fifteen groundwater sub-basins identified within Mongolia's Selenga River Basin. The total area is estimated at 269,000 km². The water entry into the basin (recharge) is estimated at 5.40x10⁹ m³/year (14.8x10⁶ m³/day). Although this constitutes a significant ground water volume, in many urban and industrial areas the ground water extraction already exceeds recharge rates during dryer times of the year.
53. The ground water within the Lake Baikal basin is polluted from numerous point and diffuse sources, such as urban settlements, industrial centers, agricultural and mining activity. The main point pollution sources are sewage water discharges and insufficient solid wastes management in big cities (Ulan-Bator and Ulan-Ude).
54. Currently, groundwater monitoring in the Baikal / Selenga basin is limited to occasional sampling of Ulaanbaatar's groundwater. Very little information is available on the sites, frequency, type of analysis of groundwater throughout the rest of the Baikal Basin. There is a lack of both ambient and facility/discharger based data. No enforcement cases have been brought to the courts in the region due to

soil and/or groundwater contamination and there have yet to be any containment efforts or consequent groundwater monitoring.

55. Habitat destruction. Destruction and/or modification of critical riparian, forest, and steppe habitats are increasing threats to Baikal's biodiversity and ecosystem health. Resource exploitation and associated infrastructure within the Baikal Basin is spurring the degradation and destruction of wetland areas. These actions alter the flow dynamics of the watershed, restrict buffering and filtration capacity, compound erosion problems and degrade aquatic habitats.

56. Properly organized tourism has the potential to diversify the local economy while remaining biodiversity-compatible. In some cases, eco-tourism remains a key disturbance factor, accompanied by of increasing coastal degradation due to poorly treated sewage, erosion and garbage from poorly regulated tourism development. Lake Hövsgöl's expanding and poorly regulated tourism destinations have resulted in declining bird populations and have created trash and erosion problems. Around Lake Baikal, tourist site and summer home development has been expanding, often in conflict with conservation requirements and without adequate sanitation systems. This is a growing threat, with Baikal tourism expected to increase rapidly to 1.5 million visitors annually in the coming years. There are glimmers of hope. Catch-and-release sport fishing is flourishing in parts of the Mongolian Selenga watershed, generating jobs and income for Mongolians.

57. Impact: Lake Baikal as a whole remains relatively clean due to mixing and the sheer volume of the lake. However localized contamination and eutrophication events are increasing. Signs of stress on the ecosystem are becoming more apparent. There is also evidence of declines in the population of the zooplankton species: *Epischura baicalensis*, in some coastal areas. This tiny indigenous shrimp provides a key link in the food chain and is a vital cog in the Lake's filtration system. At present, the populations of almost all fish in Lake Baikal are in a distressed state; their fatness and productivity have been almost halved over the past 30 years. Their reproduction is disturbed by the pollution of spawning habitat, especially in the Selenga River where the largest populations of most fish species used to spawn.

58. Fish species at highest risk include the Baikal Sturgeon, the Frolikh Char, the Baikal White Grayling, the Taimen and Tench (all listed in the Russian Red Book). The Frolikh Char has not been caught in Baikal waters for 40 years, and the Sturgeon has been the focus of more than half a century of breeding efforts yet remains significantly threatened, and the Taimen has witnessed catastrophic reductions in population numbers throughout much of its range in the Baikal Basin in recent years.

59. Studies suggest that climate and human-induced changes have significantly impaired fish populations in the Baikal tributaries in Mongolia and Russia. Some rivers in the Selenga basin, where alluvial gold is mined and where considerable silting has occurred, no longer provide suitable conditions for Taimen, Lenok and Siberian Grayling spawning. Overall, the region has witnessed a reduction in the species numbers. There is evidence of increasing spread of alien invasive fish and plant species as a result of the suppression of indigenous species. Negative effects of invasive species in Baikal are beginning to be seen in the naturalization of the Amur sleeper in the water bodies of the Selenga River Delta. Expansion of this species in the Baikal littoral zone is ongoing, particularly in the near-estuary sections of tributaries on the eastern shore of the Lake. With respect to aquatic species, high toxicity levels are present in the Baikal seal population (Nerpa), which experienced massive mortalities between 1997 and 1999.

1.4 Stakeholder analysis

60. Both Russian and Mongolian national, state and local environmental regulations are administered by their Ministry of Natural Resources and Environment and Ministry of Nature, Environment and Tourism respectively, with each aimag or oblast having separate branches responsible for maintaining state and local environmental quality standards. Russia established the Baikal Commission in 1993 to coordinate policies between the regional governments within the Baikal Basin of Russia. The mission of the Baikal Commission was to facilitate the involvement of all levels of government and stakeholders while focusing on the Russian portion of the Baikal Basin as a single entity. In 1994, the Baikal Commission drafted the

Baikal Law, a law designed to regulate all economic and environmental activities in the Basin. The Duma passed this law in 1999. In 2000, the Baikal Commission was abolished.

61. In 2002, the Federal Government established a Federal Environmental Protection Agency for Baikal or “Baikalpriroda,” established with special jurisdiction to enforce the Baikal Law and to coordinate resource management agencies in the Baikal Basin of Russia. In 2004, Baikalpriroda was replaced by Baikalkomvod (Baikal Department of the Federal Water Agency), which is also responsible for coordinating with Mongolia on all transboundary water issues.

62. This represents Russia’s first government-led effort to look at the entire Baikal Basin and begin to consider a workable transboundary collaborative management structure for both Russia and Mongolia. Production of an annual report of priority transboundary issues is being planned by the two countries. Despite the importance of Baikalpriroda’s role, its financing and staffing levels are inadequate to the task. In 2002, Baikalpriroda’s budget was slightly less than US\$1 million with a total staff of 15.

Table 1: Stakeholder Analysis for Russian Baikal Region

#	Stakeholder	Roles and responsibilities relevant to Baikal INRM
1	Federal Institutions:	
	Ministry of Natural Resources & the Environment (MNRE)	Elaborates state policy and regulations for natural resource management, including: sub-soils, water bodies, wildlife and their habitats; water and soil pollution control and prevention; monitoring of environmental quality, pollution. Elaborating and implementation of the state policy and regulating in the sphere of environmental protection, including issues related to state ecological expertise. Also responsible for the elaboration of state ecological expertises (environmental impact assessments).
	Department of the State Policy and Regulation in the sphere of Environmental Protection and Ecological Safety (DSPR)	Elaborates state policy on nature conservation. It is the lead MNRE department for international conventions and agreements and for monitoring and facilitating State implementation of international conventions and agreements.
	Federal Environmental Protection Agency (Rosprirodnadzor)	Responsible for control of environment and use of natural resources and for implementation of the EIA process.
	Regional directorates of Rosprirodnadzor	Implement the EIA process at the regional levels.
	Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet)	Registration, management and monitoring of surface water resources of the Russian Federation, which also extends to monitoring of air quality. Responsible for elaborating and implementing an environmental monitoring system, including the establishment of organizational responsibilities and a unified database for maintaining and making available for use relevant data on environmental quality across Russia.
	Federal Service of Ecological, Technological and Nuclear Surveillance (Rostekhnadzor)	Pollution and industrial safety control related to the prevention and/or limitation of adverse technogenic impact from industrial processes. Also responsible for relevant functions in support of implementing state ecological expertise (EIA) at the federal level.
	Federal Agency of Water Resources (Rosvodresursy)	The redistribution of federal water resources; prepares, concludes and implements basin agreements to restore and protect water bodies. Prepares and implements anti-flood activities; Designs and establishes water protection zones for water bodies including shoreline and riparian protective zones. Responsible for maintaining water quality and for promoting the integrated use and protection of water resources. Responsible for state monitoring of water bodies, measuring and monitoring of surface and ground water resources and their use. Identifies the amounts for ecological outflows and the irretrievable retirement of surface waters for each water body.
	Department for water resources of the Baikal Lake (Baikalkomvod)	

#	Stakeholder	Roles and responsibilities relevant to Baikal INRM
	Federal Agency of Sub-Soil Use (Rosnedra)	State geological study of sub-soils. Conducts state expertise (EIA) on mining and other projects; Registers and monitors mining and other mineral and sub-soil use activities. Serves as the government entity that issues licenses for sub-soils use, particularly for mining endeavors.
	Interagency Commission on the Baikal Lake Protection Issues	The regional body created by the Russian Federation to improve federal-regional coordination around the conservation and sustainable use of Lake Baikal's natural treasures. Facilitates the implementation of activities agreed among relevant Federal government entities and the executive bodies of the Republic of Buryatia, Irkutsk Oblast and Zabaikalsky Krai, and Ust-Ordynsky Buryatsky Autonomous Okrug. Develops policy recommendations on the protection and sustainable use of natural resources of the "Baikal Natural Territory." This includes the conservation of biological diversity, the provision of ecological safety, socio-economic issues based on the sustainable development principles, and ensuring the continued status of Lake Baikal as a World Natural Heritage Site.
2	Ministry of Agriculture (MoA)	Elaborates federal policy in the agricultural sector, including sustainable development of rural areas, cattle breeding, veterinary medicine, cultivation, soil enhancement, agricultural products, aquaculture and forest management outside of PA.
3	Federal Service for Veterinary and Phytosanitary Surveillance – "Rosselkhoz nadzor" (under MoA)	Control and supervision in the field of veterinary science; imposes phytosanitary quarantine zones, control pesticide and agrochemical use; protection, reproduction and use of animals and aquatic biological resources, protection of the population from animal infectious diseases.
	Federal Forestry Agency (Rosleskhoz, under MoA)	State monitoring of forests; state record of forest fund; keeping, use and management of information on the forest fund; referring of forests to forest groups and forest protection categories; maintenance of the state forest cadastre; organizes: forest management; activity of the state forest protection of the Russian Federation, except functions of the state control and surveillance; on-land and aviation protection of forests from fires and their extinguishing; implementation of activities on protection and defense of forests, forest pest and diseases control, combating fires.
	Ministry of Economic Development (Federal level)	Land ownership issues, social-economic development in rural areas. State cadastre oversight, state monitoring of lands the state registration of rights for real estate.
4	Federal Agency of Fishing	Develops fish management policy; approves fishing rules that influence Baikal including Total Allowable Catch for any species referred to as an object of fishing in Baikal. Issues permits for fishing, marine mammal hunting and other kinds of aquatic resource use; monitors fisheries and enforce fishing regulations. Important stakeholder in approving proposals for new management regimes in Lake Baikal. Under the supervision of the FAF, a variety of institutions are eligible to manage the marine mammal protection zones and fishery refuge zones created under the new Law on Fisheries of 2004.

#	Stakeholder	Roles and responsibilities relevant to Baikal INRM
5	Territorial Directorates of the Federal Agency of Fishing	Issue permits for commercial, recreational and subsistence (for local/indigenous communities) fishing and other kinds of use of aquatic biological resources in the internal waters where fishing is allowed. Fish inspection departments within the territorial directorates are responsible for the enforcement of the regulation of fishery and protection of aquatic biological resources, including the control of no-fishing areas and, presumably fishery refuge zones once they are established.
	Baikal basin department for protection, fish resources reproduction and fishing regulating (Baikalrybvod)	Elaborates and enforces regulations governing the reproduction and protection of aquatic biological resources (fishes and other aquatic animals and plants) in water bodies with commercial fisheries in the Republic of Buryatia, Irkutsk Oblast and Zabaikalsky Krai, Ust-Ordynsky Buryatsky Autonomous Okrug. In collaboration with other federal and regional entities Baikalrybvod is the specially authorized government agency for the protection, control and use of wildlife and their habitats. It is part of the system of federal agencies especially designated for nature protection.
	Ministry of the Russian Federation on the Issues of Civil Defense, Emergencies and Disaster Control (and Mitigation of Natural Disaster Aftermath)	Elaborates and implements and enforces state policies in the field of civil defense, civil defense from natural disasters, provision of fire safety and safety of people at water bodies.
6	Ministry of Regional Development of the Russian Federation	Elaborates state policy to promote socio-economic development. Coordinates work among federal and regional authorities, local administrations, with respect to EIA and State Expert Review of economic development projects such as mining and tourism.
7	Ministry of Sport, Tourism and Youth Policy of the Russian Federation	Elaborates official policies and programs to develop and promote tourism across the Russian Federation, including in the Baikal area.
8	Federal Agency for Tourism	Implements tourism policies and programs.
	Regional Administrations/ Governments	In the most developed case may have Ministries of Environment with staff and budget and programs to improve water quality.
11	Ministry of Natural Resources of the Republic of Buryatia (RB)	<ul style="list-style-type: none"> • Updates and maintains the Red Book of the RB. • Establishes and enforces standards for environmental quality. • Ensures sustainable use of water bodies, manages drinking water supply. Levies fees for water use. • Develops inter-municipal programs in environmental protection and ecological safety, covering: air quality protection, waste management, and protection and reproduction of wildlife and their habitats. • Elaborates and enforces hunting and timber harvest laws, enhances wild game populations, tree planting/forest restoration, and monitoring.
12	People's Hural of the Republic of Buryatia	Legislative (representative) body of the Republic of Buryatia.
13	Ministry of Agriculture and Food of the Republic of Buryatia	Ensure the sustainable development of agricultural areas and rural economies. Conservation and reproduction of natural resources used for agricultural production such as water. Formation of efficiently operating market for agricultural products and development of this market infrastructure. Domestic animal breeding to improve agricultural productivity.

#	Stakeholder	Roles and responsibilities relevant to Baikal INRM
14	Local Municipalities and Towns	Local municipalities and towns are the homes of local resource users and politicians interested in livelihood and resource management issues in Baikal INRM. Carry out works related to establishing and operating the Baikal Special Economic Zone for Tourism Development, including five municipal areas.
15	National and Regional-level Universities Russian Academy of Sciences	Several universities, including: Irkutsk State University, Moscow State University, Chita State University, East-Siberian State Technological University (Ulan-Ude) Institute of Limnology of RAS, Institute of Water Problems
16	Wetlands International, Russia	Maintains a database on the important wetlands in BB.
19	Local NGOs	A growing number of local NGOs and community-based organizations are participating in conservation related initiatives across Russia. NGOs play an active role in: Promote, develop, and implement projects for the: <ul style="list-style-type: none"> • Environmental protection, conservation and improvement. • Social, educational activities to cultivate scientific and creative abilities of local people. • Enabling local people to better participate in environmental protection and natural resources use. Relevant local NGOs include: <ul style="list-style-type: none"> • Buryat regional branch for Baikal (BRB for Baikal). • All-Russian Society for Nature Conservation - Buryat, Irkutsk, Chita. • Interregional Public Organization “Great Baikal Path” • Chita Public Entity “Public Ecological Center ‘Dauria’” • Regional Public Organization “Ecoliga.” • Baikal Wave (an NGO devoted to protecting Lake Baikal) • Tahoe-Baikal Institute.
20	Tourism companies	Many tourist companies operate in the BB area providing a range of tourism opportunities. Some examples: <ul style="list-style-type: none"> • “In the World of Fantasies” tourist company; • Club “Firn” (Tourist company “Firn Travel”) • Buryat Federation for Alpinism and Rock-climbing; • Eco-tourism Club “Davan” (Great Baikal Path) • “Baikal Business Incubator” • Chita Branch - All-Russian People’s Tourist Society.

Table 2: Stakeholder Analysis for Mongolian Baikal Region.

#	Stakeholder	Roles and responsibilities relevant to INRM and Pollution Control in the Selenga River Basin.
	The Ikh Khural - Mongolian Parliament, Committee on Environment, Agriculture, and Rural Development	Mongolia’s Parliament, the Ikh Khural is the highest law-making body of Mongolia. The Parliamentary Committee on Environment plays an active role in reviewing effectiveness of current law and proposing new laws or modifications to existing ones.
	Ministry of Nature, Environment and Tourism (MNET).	The MNET was established in 1989 as the Ministry of Nature and Environment (MNE). In 2008, MNE was restructured as MNET, with the inclusion of Tourism under its portfolio. The MNET’s authority encompasses several relevant sectors, including: water, protected areas, environmental protection, and tourism. Its responsibilities include: <ul style="list-style-type: none"> • Implements water policy and watershed management goals.

#	Stakeholder	Roles and responsibilities relevant to INRM and Pollution Control in the Selenga River Basin.
		<ul style="list-style-type: none"> • Implements policy level activities on trans-boundary water cooperation with Russia under the existing agreement. • Promulgates and enforces environmental law • Refines existing law together with the Khural Committee. • Issues fishing and hunting licenses. • Approves community resource management nokhorlol. <p>MNET Tourism department defines policy on tourism, monitors policy implementation, devises decent legal framework to promote & develop tourism, provide tourism organizations with professional leadership and coordinate tourism programs at state and international levels. Aimag tourism boards are responsible for monitoring the implementation of policy locally.</p>
	Water Authority of Mongolia	Responsible for implementing Government policy with respect to water resource inventory and management in Mongolia. Is responsible for monitoring water resources and to strengthen knowledge and capacity in the field of IWRM in Mongolia. Is responsible for producing the National Water Resources Plan and for selecting and developing pilot river basin management plans in Mongolia.
	Center for Meteorological Analysis Central Lab of Environment and Meteorology	Administers nation-wide network of meteorological stations, the largest and oldest network of monitoring stations in Mongolia. Prepares weather forecasts, analyzes meteorological data, and manages data. Includes the Central Lab of Environment and Meteorology, which: provides information on ground and surface water to government and public. The lab is able to test for 15-20 indicators of water quality QA/QC.
	Environmental Inspectorate	Environmental law enforcement, this department manages the state inspectors whose job it is to enforce environmental and wildlife laws.
	State Specialized Inspection Agency	Implements and maintains water conservation and pollution prevention programs and policies, developed the National Water Sources Protection Program and promotes natural resource conservation and pollution control through environmental governance.
	Ministry of Mineral Resources and Energy	Oversees the mining industry in Mongolia and is planning to pass new regulations on the grass-roots artisanal mining sector in Mongolia. Issues mining permits, oversees the EIA process.
	Aimag governments (Aimags are the regional or state-level entities in Mongolia).	Aimags in the Selenga Basin of Mongolia: Hovsgol, Arhangay, Bulgan, Orhon, Selenga, Darhan-Uul, Tuv, Hentey, Ovorhangay.
	Mongolian National Academy of Sciences Geoecology Institute	Has substantial experience monitoring and sampling fish populations (grayling, etc.) in tributaries of Lake Hovsgol and throughout Selenga Basin. Play an important role in Mongolia of advising policy makers in MNET and the Hural on science based fishery and natural resource management.
	Taimen Conservation Fund	Created from a now closed IFC-GEF project, the TCF is a Mongolian NGO focused upon the conservation and sustainable use of taimen and their aquatic ecosystems within the upper reaches of the Selenga Basin. TCF has extensive experience with BAT-BEP in combining conservation with successful eco-tourism business.
	Mongolian Association for	Promotes environmental protection through media, scientific

#	Stakeholder	Roles and responsibilities relevant to INRM and Pollution Control in the Selenga River Basin.
	Conservation of nature and the Environment (MACNE)	and technological studies in the environmental field. Mongolia's oldest environmental organization.
	Union of Mongolian Environmental NGOs (UMENGO)	Assistance to environmental and ecologically-oriented organizations and associations of Mongolia
	Mongolian Water Association	Technical and technological modernization in the field of water resources development, use of reasonable amounts of water resources, prevention of water pollution, carrying out activities in the field of prevention to water objects/resources pollution
	Mongolian National Eco-Tourism Society (MNETS)	A membership society of tourism companies and organizations in Mongolia. Lobbies for policies for tourism.
	Ecological club "Erdem"	Works under the auspices of the National University of Mongolia. Activities include: summer camps, waste management control; sustainable timber use; pollution prevention (air, land, water); urban gardens/parks; replacement of shopping plastic bags with paper ones. Conducts clean up campaigns and raises awareness around Mongolia.
	WWF-Mongolia	Works to strengthen the application of Mongolian EIA law and the promotion of Integrated River Basin Management (IRBM) as the accepted conservation tool for managing river basins and watersheds. Also works actively on river conservation work outside the Selenga Basin in other rivers systems of Mongolia – a source of potential valuable lessons for this project.

1.5 Institutional, law and policy context

Transboundary Agreements and Institutional Context

63. The history of joint agreements dates to 1974 with the Agreement between the USSR Government and the Government of the Mongolian People's Republic on the Rational Use and Protection of Selenga River Basin Waters. In 1988 an agreement between the USSR and the Mongolian People's Republic was signed in Ulaan Baatar on "Cooperation for Water Management in Transboundary Waters".

64. Signed in 1995, the bilateral "Protection and Use of Transboundary Waters" (PUTW) Agreement between Russia and Mongolia replaced agreements on "Water Management" (1988), and on "Rational Use and Protection of Selenga River Basin Waters" (1974) and is broad in scope. It addressed:

- environmentally sound use of water resources, preventing pollution and water depletion;
- research on hydrochemistry, hydrobiology, and riverbed processes;
- joint research, assessment and planning in flood management;
- joint water quality monitoring and pollution prevention;
- preserving conditions for natural migration of fish and other aquatic fauna;
- developing common concepts for river basin water management;
- developing joint pollution and hydrological monitoring standards and procedures;
- information exchange on planned water management measures;
- jointly financed transboundary work and pursuit of international funding to support it;
- sharing of water resources and adopting international standards of water quality;
- prevention/reduction of negative impacts on transboundary water basins in national territories.

65. Progress towards initiating transboundary management of the basin has had variable success. Both countries regularly share information, exchange visits, and have in place a scheme of cooperation in emergencies. The Joint Working Group for the PUTW recently extended the list of polluting substances to be monitored by both sides (e.g. heavy metals, oil products, mercury). The group has prepared a bilateral program "Assessment of transboundary parts of the Selenga River, its tributaries and risk for

human health in Russia and Mongolia", but the implementation of this program has stalled. Both countries perform hydro-meteorological monitoring, albeit using data protocols that remain disparate.

66. In 2006 at the meeting of the Joint Working Group (chaired by the water resource agencies of the two countries), joint planning of river basin management was discussed in detail. Mongolia recently adopted new laws on river basin management and seeks Russia's assistance to develop strategies for management of shared river basins, with the Selenga River proposed as the first pilot project. Mongolian engineers informed their Russian partners that they plan to build a hydropower plant on the Egiin River, a tributary of the Selenga, and seek Russian assistance in solving environmental and hydrological problems arising in the course of the project. New water quality monitoring procedures and jointly monitored substances were discussed.

67. Clearly there is a long and impressive history of bi-lateral cooperation between Mongolia and Russia on Baikal and Selenga River issues. But to date, this cooperation has been unable to bring about real impactful change in resource management practices in both national areas of the basin and in more substantial areas of transboundary planning and cooperation.

68. *National Institutional Context in Russian Portion of the Basin.* The Interdepartmental Commission on Protection of Lake Baikal comprised of representatives from: Rosprirodnadzor, Irkutskaya Oblast, Republic of Buryatiya, Chitinskaya Oblast and Ust-Ordynsky Buryatsky Autonomous District; and six Federal Ministries (Natural Resources; Agriculture; Economic Development and Trade; Emergency Situations, Industry and Energy; Foreign Affairs), and Rosleskhoz & Rosrybolovstvo and the Russian Academy of Sciences.

69. Created in May 2007 by the Russian Duma, the Commission is functioning in the Russian portion of the Baikal Basin. This Commission is supposed to formulate and coordinate work among federal Ministries and the primary regional entities within the Baikal Basin (Buryatiya, Irkutskaya, and Chitinskaya) regarding the realization of state policy in the field of Lake Baikal protection. Among the tasks of the Commission are also refining and strengthening the legal-regulatory acts in the field of environmental protection and reasonable exploitation of natural resources within the Baikal natural territory; ecosystem monitoring of the unique ecology of Lake Baikal; and fulfilling obligations of the RF to protect Lake Baikal as a UNESCO world heritage site.

Russian Federal Legislation / Policy and Cross-Sectoral Institutions relevant to INRM in Baikal Basin.

70. Active stakeholder involvement in Baikal issues has led to some significant regulatory efforts focussed on protecting the ecological health of Lake Baikal and its basin tributaries within Russia. The Russian Duma passed the "Baikal Law" *On protection of the Baikal Lake* in 1999 as the first federal land-use regulation for a specific Russian territory in an attempt to coordinate resource use and protection efforts within Russia's portion of the Baikal Basin. The law was revised in 2004. The Baikal law includes four main sections: 1) a general overview of problems at Baikal; 2) an outline of the three regions requiring special protection including the "central ecological" zone, the "atmospheric influence" zone, and the "buffer" zone; 3) a description of maximum allowable pollution within the central ecological zone; and 4) a list of existing federal regulations on the protection of Lake Baikal.

71. The Baikal law provides the foundation and coordinating framework for protection of LB among the numerous resource management agencies within the Basin. However, details are not specific on how state and local governments should comply with the intention of the law's zoning and standards for maximum allowable pollution. To help provide more specific guidance, several subsequent regulations and decrees associated with the Baikal Law have been passed such as Federal Order 234 (2001), which regulates the required water level of Lake Baikal (controlled by the Irkutsk Hydropower Plant). In 2002 a decree was passed providing a list of forbidden activities in the central ecological zone. Two additional laws have been discussed focusing on ecological monitoring and another on setting ecological thresholds for the management and resulting impacts of hazardous materials in the Basin, but they have not been passed.

72. The law begins to address the specific needs of protecting the endemic aquatic animal and plant species in Baikal area of Russia; regulate areas of traditional nature use; identify the types of sustainable use allowed (e.g. the types of forest management and use allowed in the central ecological zone), and the organization of tourism and recreation in the central ecological zone. Regulations to operationalize and implement the ecological zoning created by this law still must be fine-tuned and adopted.

73. Since 1999 the Russian Government has been earmarking budget resources for targeted water quality and conservation programs in Baikal, supporting primarily the protected area system, scientific monitoring, information and awareness raising. The Baikal Law illustrates the importance that the Russian government places on Baikal – it is the only law in Russia focussing on a particular geographic place. But the law tends to focus on what is forbidden rather than encouraging desired practices and there the ecological monitoring in place does provide a sufficient basis upon which to judge whether the law is being followed. In addition, naturally, the law only covers the Russian portion of the Baikal area, leaving to other efforts such as this project, the critical transboundary aspects of Baikal's environmental health, *i.e.* the substantial portion of the freshwater entering Baikal through Mongolia's Selenga River.

74. *Law on Protection of Natural Environment*. The basic umbrella law on the environment, the law determines legal grounds of the state policy in the field of environmental protection by seeking to balance socio-economic development with environmental conservation. The law determines basic notions, mechanisms and tools (legal, institutional, economic) applied *inter alia* to achieve these goals. The law determines priorities for environmental protection, including surface and groundwater, forests and other vegetation, and biodiversity. Passage of the law established that Russian environmental law is grounded in the RF Constitution and consists of a whole body of federal law and policy and regional laws and policies. This law defines the standards for environmental quality. Its practical implementation requires the elaboration of implementable regulations.

75. *Law on Wildlife* (FL #52). Regulates relations in the field of protection and use of wildlife, as well as conservation and restoration of its habitats aimed at provision of biological diversity, sustainable use of all its components, establishment of conditions for sustainable wildlife populations and the conservation of biological diversity. Wildlife within the RF is state property. Some wildlife is considered to be federal property, including rare and endangered species, as well as those recorded in the Red Book of RF and that wildlife inhabiting the specially protected areas at the federal level.

76. The *Water Code* provides for the protection of riparian lands and along the shorelines of water bodies. The Code calls for the application of the basin or watershed approach to water resource management. Baikal is part to the Angara-Baikal basin. This Law determines responsibilities and levels of authority for government organizations in the field of water management. The law calls for the establishment environmental quality standards and objectives for surface and groundwater resources, but no specific norms or practical guidance is given on how to implement such provisions – a key barrier to achieving results on and under the ground.

77. The *Law On Fishing and Protection of Aquatic Bio-resources* regulates the establishment of water quality norms for water bodies of fishery significance and water requirements for these water bodies. The law also regulates the establishment of annual total permissible catches of aquatic bioresources, and, for the first time in Russian legislation, enables the protection of water bodies (all or portions thereof) of fishery significance for the purpose of conserving valuable fish species and other aquatic bioresources. To do this, the law allows for the establishment of fishery reserve zones (*i.e.* fish refuges). Implementation of this aspect of the law has been hampered by a lack of specific norms on how these fish refuge zones could be created, managed or mainstreamed into the productive landscape.

78. *Protected Areas (PA) Law*. The principal legislation on PA, it establishes permanent federal ownership over federal PA, clarifies PA categories and the responsibilities of federal and regional authorities. The law provides the legal framework for establishing and managing specially protected areas for the conservation of biological diversity and important natural areas.

79. There are two pieces of legislation that are particularly important when considering mainstreaming of biodiversity conservation considerations into mining and tourism sector policies and operations. These relate to Environmental Assessment (On Ecological Expert Review, November 1995 No. 174-Φ3) and Territorial Planning (City Planning Code, December 2004 No. 190-Φ3).

80. 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 - summarizes existing laws, procedures and institutional responsibilities related to environmental assessment). All mining projects are subject to an Environmental Impact Assessment (EIA), followed by a State Expert Review or State Expert Environmental Review (these are predominantly operations within or close to 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.

81. 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 in the UNDP Project Document 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.

Mongolian National Legislation / Policy and Cross-Sectoral Institutions relevant to INRM in Baikal Basin.

82. In 1999 the Government of Mongolia launched a National Program for Water Issues and established a National Water Committee with responsibilities to manage, regulate and control the Program. More recently, the new Law on Water passed in 2004 created and detailed the responsibilities of the new Water Agency.

83. *The Water Agency* is located within the MNET and implements state integrated policy related to assess water resource of Mongolia. The Water Agency is the lead agency for Mongolia with respect to the Russian/Mongolian Transboundary Water Agreement. The Agency's relevant priority functions include: developing and adopting economic valuations for water use; monitoring changes in water resources; developing and modifying water usage applying new standards of sustainable use and encouraging the use of new technology to reduce water usage; strengthening water management capacity and sustainable knowledge base at selected institutes and agencies; improve the capacity in the field of IWRM in Mongolia; producing the National Water Resources Plan; produce a pilot watershed management plan for the selected pilot basins.

84. *National Water Committee (NWC)*. Established in 2000, the NWC is a cross-disciplinary group created by the Mongolian Government to coordinate and monitor water policy implementation. The NWC is the institution tasked with implementing the National Water Program (2000-2010) through the development and implementation of action plans. The Committee is responsible coordination water policies and actions by the ministries and local governments. This coordination allows the government to keep the links between the policies initiated and implemented by the successive governments. The NWC supports water policy implementation to ensure sustainable water use, restoration, conservation, pollution prevention and provision of safe and sufficient water to consumers. The NWC's role is also one of cross-sectoral coordination of line ministries and the fragmented water management sector, including policy coordination. The NWC administers the National Water Sources Protection Program developed by MNET.

Mongolian Legislation/Policy relevant to INRM in Baikal Basin.

85. *The Law on Water* (2004) regulates relations arising out of and in connection with sustainable use, protection and rehabilitation of water and watershed areas. Article 19 stipulates that river basin/watershed area councils shall be established with a purpose of ensuring participation of local residents in water management in order to protect, practice sustainable use and rehabilitate water resources.

86. The level of authority of such councils is unspecified. At least one exists within the larger Selenga Basin of Mongolia (the Eg-Uur watershed) but it is unclear how it could contribute to transboundary collaboration or even collaborate with other councils within Mongolia. The project addresses the challenges of the 1999 Integrated Water Quality Issues Program of Mongolia and the 2004 Law on Water, helping the country to build capacities at the national and local levels to implement this Program.

87. *The Law on Special Protected Areas* (1994). Provides for the establishment of PA systems at national and local levels, and establishes management regulations for national PA. The law regulates the use and procurement of land for special protection and conservation of its original conditions in order to preserve the specific values, including biological, scenic and scientific. Specifies sources of financing for PA including: (1) state/local budgets; (2) income from tourism and other activities and services; (3) donations and aid by citizens, economic entities and organizations, and; (4) fines.

88. *The Law on Environmental Protection* (1995). Focuses on principles such as protection, sustainable use and restoration of natural resources. Clarifies ownership of natural resources, stating: “the land, its underground resources, forests, water, animals, plants and other natural resources shall be protected by the State and... unless owned by citizens of Mongolia, shall be the property of the State.” Allows citizens and legal entities to use natural resources upon payment of fees. The law enables State environmental inspectors to stop operations that adversely affect the environment in breach of law, standards and permissible levels and to impose penalties.

89. *The Law on Forests* (2007). Regulates the protection, possession, sustainable use and reproduction of forests. Law on Special PA covers forests within PA. In protected forests, all activities are prohibited “except for the construction of necessary infrastructure, forest restoration, cleaning and use of non-timber resources.”

90. *Minerals Law* (1997). Regulates exploration and mining activities within Mongolia. Article 30 specifies the environmental protection responsibilities of mining licence holders, including the requirement to conduct an environmental impact assessment (EIA) and prepare an environmental management plan (EMP). The EIA must identify the expected adverse environmental impacts to land, water, air, and plant/animal and human life and determine measures to minimize and mitigate such impacts. These responsibilities include providing specific measures to ensure that mining minimizes damage to the environment: a) Controlling toxic substances and hazardous materials; b) Conserving, protecting surface water and groundwater; and c) Constructing and maintaining safe tailings dams if necessary. The EMP must also specify measures for rehabilitation of the land to productive use.

91. *An emerging Law on Artisanal & Small-scale Mining* (ASM). Commercial miners and local government authorities have been critical of ASM operations in Mongolia, stressing their environmental health hazards and the fact that they operate largely outside the existing legal framework for mining. Several attempts have been made by government to accommodate ASM by enacting interim regulations for this informal activity. Because the regulations were largely ineffective, they were not renewed. A draft ASM Law failed to gain parliamentary approval in 2005.

92. Based on lessons learned from the implementation of the interim and temporary regulations of ASM in Mongolia and from international experience, the Ministry of Mineral Resources and Energy decided to propose a new draft law for *Artisanal and Small-scale Mining Law* that incorporates such lessons. The proposed ASM law will provide a new legal framework for ASM that based on the idea that ASM is a subsector of the mining sector and requires a correct and stable legal context.

93. The other objective of the law proposal is to allow for a diverse range of ASM to be legalized through attribution of different ASM licenses. In this sense, the law does not have one single model of

ASM but rather, tries to incorporate the spectrum of operation types from the family business to a small business operation.

94. To achieve this objective the law creates three different types of ASM licenses based on volumes of production and size of the licensed area. Each license has corresponding social, economic, taxation and environmental obligations and the same characteristics of the full mining concessions such as priority, exclusivity and transferability in order to create stable conditions that allow for investment and economic growth, independent of whether it is a micro, family, or small-scale operation. The law will create the opportunity to reverse many of the negative aspects of ASM experienced to date in Mongolian, including the inappropriate use of chemicals causing harm to ecosystem and human health.

Lessons learned from previous projects and/or Coordination with Existing Projects. In 1996-2003, the US\$20 million GEF-WB Biodiversity Conservation Project was implemented in the Russian Federation. One of the results was development of a Lake Baikal Biodiversity Conservation Strategy, providing a political and institutional context for expanding Protected Areas and developing watershed plans. The effort helped develop new regulations for implementing the Federal Law "on Lake Baikal Protection;" including setting set up a framework for coordinating biodiversity conservation and regional socio-economic development policies; and region-specific watershed-based biodiversity conservation programs designed and completed in three sub-basins (Goloustnaya Watershed/Irkutsk, Khilok Watershed/Zabaikalsky Krai, Tugnuysukhara Watershed/Buryatia). A successful community small grants programme has been carried out focusing of community based awareness initiatives and support to Baikal protected areas. The biodiversity components of this proposed project supports implementation of the plans developed in the previous project, in particular implementation of the three sub-regional watershed management plans. The UNESCO World Heritage Committee regularly monitors the state of environment in the Baikal watershed. UNESCO is implementing a project on sustainable development education in the Baikal Lake area aiming to create the Baikal world model territory for sustainable development. The EU TACIS program has supported an initiative on sustainable land management in the Russian portion of the Baikal Basin. The US Agency for International Development (USAID) recently funded an effort to promote low-impact tourism at Lake Baikal by developing the "Great Baikal Trail." UNEP financed a \$150,000 project with the Buryat regional institutions in 2009-2010 "Development of I&R system of specially protected areas in the Republic of Buryatia to improve their management in the context of Baikal region sustainable development". The main components of this project included development of a concept of the I&R system for the landscape ecological complexes and protected populations/species in Buryat specially protected areas, recommendations on Buriat PAs development and management improvement and specialized exposition and publications on the nature and biodiversity values of Buryatia PAs. The outputs of this project will be utilized for the BD-focused components of the proposed GEF project and for the work of the Baikal information centre (Output 3.4.). A UNDP regional partnership with the Coca-Cola company „Every Drop Matters“ financed an initiative in Russia in 2010-2011 (\$300,000) focused on the protection of drinking water resources and sustainable economic development of local communities. The EDM-Baikal project focuses on reducing water contamination from municipal waste and growing tourism operations through the awareness and educational work with local communities and wider audience, including tourists, mass media and businesses. The initiative supports local grants related to sustainable tourism and pilots aimed to improve water quality in selected communities. It represents co-financing to the output 3.3. of the proposed GEF project.

95. In Mongolia, this proposed project follows a UNDP/GEF sustainable land management project under development in the areas of community land management. A closely related project is the German-

financed Integrated Water Resources Management Project for Central Asia: Model Region Mongolia (MoMo); designed to develop and implement Integrated Water Resources Management (IWRM) in Mongolia. This “model” IWRM project is focused on the River Kharaa catchment, with the results then to be transferred to other catchments in Mongolia and elsewhere in Central Asia. Starting in 1995, the US National Science Foundation has provided funding for several research institutions, including the Mongolian National Academy of Sciences and the National University of Mongolia, to conduct joint biodiversity research in the Hövsgöl Lake watershed. During PPG the project will establish cooperation with on-going projects and institutions working in the BLB, including local NGOs and international/bilateral organizations. In particular, the proposed project will establish linkages with the Baikal Economic Forum, established in Russia in 2000. The Forum has become a significant venue for provincial, national and international cooperation in economic and sustainable development projects including conservation initiatives.

96. Coordination will be also ensured with the Russian national programmes and projects focussed on the protection and sustainable development in the Baikal regions. In 2010 the Ministry of natural resources and environment of Russia has developed a new federal target programme “Protection of the lake Baikal and socially economic development of the Baikal nature territory in 2011-2020” The draft programme was presented at the Baikal Economic forum in September 2010. The programme envisages work on pollution abatement/utilization and support to sustainable alternative economic development for local communities including tourism development. The programme includes tourism development investments with federal protected areas in the Baikal basin and with the regional and local administrations of the Buriat republic, Zabaikalsk Krai and Irkutsk oblast. The proposed GEF project will be working closely with federal and regional authorities to coordinate with the new federal programme in particular under Outcomes 1 and 3.

1.6 Baseline analysis summary:

97. This project builds upon a solid, decades-old baseline of bilateral cooperation between Russia and Mongolia on the transboundary waters of the Selenga River and by extension the Baikal Basin itself. To date, international support for environmental conservation and management in the Baikal Basin has not been transboundary in orientation; little support has been provided the two countries in strengthening their transboundary cooperation to manage sustainably the globally significant environmental benefits represented by the incomparable Lake Baikal and its transboundary Basin, at the top of which lies Mongolia’s aquatic jewel, Lake Hovsgol. In addition to this solid baseline of transboundary cooperation are two rapidly growing economic baselines in mining and tourism, with mining being the biggest and fastest growing economic activity in the Baikal Basin and tourism a smaller but also rapidly growing sector in both the Russian and Mongolian portions of the Baikal Basin. Both of these sectors hold much promise in becoming better stewards of the Baikal Basin’s aquatic ecosystems.

98. Lake Baikal and its transboundary basin including Lake Hovsgol represent an unparalleled global benefit in terms of international waters and biodiversity values. While past and current efforts to protect and sustainably utilize the environment and its natural resources are impressive, they are insufficient to the task of addressing the threats to the health of the Baikal Basin’s interconnected aquatic ecosystems. These threats include: climate change, pollution and sedimentation, nutrient loading, and habitat destruction. To address these threats successfully conservation work must move beyond the protected area limits and into the 87% of the Basin that is not protected where natural resource exploitation continues without regard to ecosystem health and biodiversity conservation objectives. Significant barriers hamper both countries’ ability to move ahead both within their national envelopes and jointly on a robust transboundary level. These barriers include: policy and regulatory gaps, institutional weaknesses, poor utilization of BAT/BEP relevant to key issues facing the Basin, and low levels of awareness of transboundary BB issues. In the absence of a GEF investment, these barriers are likely to continue

hampering an effective transboundary response to the critical threats that are already impacting the ecosystem health and resilience of the Baikal Basin.

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

99. The continued growth of mining and tourism in the Baikal Basin means a potential further rise in threats to the transboundary aquatic ecosystem of the Baikal Basin and its biodiversity. Whether and to what extent these threats materialize depends on if the baseline course of action is corrected to address these risks. The desired long-term solution is for Russia and Mongolia to adapt integrated natural resource management practices and policies that strengthen the ecosystem resilience of the Baikal Basin, and mainstream biodiversity conservation objectives into the policies and practices of the tourism and mining sectors.

100. Barriers analysis. The objective of the project is to spearhead integrated natural resource management of Lake Baikal Basin and Hövsgöl Lake ensuring ecosystem resilience, reduced water quality threats in the context of sustainable economic development. This solution is currently hampered by the following main types of barriers: (a) outstanding policy and regulator gaps; (b) institutional weaknesses; (c) inadequate level of demonstrated and replicated best environmental technologies, and; (d) inadequate awareness of the important transboundary nature of Baikal Basin issues.

Barrier #1: Outstanding policy and regulatory gaps.

101. Overall, the basic legal and policy frameworks for the conservation and sustainable management of the Baikal Basin are in place. From a transboundary perspective, lacking are specific laws or policies enabling the transboundary monitoring of aquatic ecosystem health both in Russia and Mongolia. The regulatory basis for ecosystem conservation and water-pollution prevention in Baikal has not yet been completed. For example, the regulatory and policy mechanisms needed to implement a SAP, as well as sub-basin watershed management plans are as yet uncertain. Several scientific components for SAP development and implementation remain yet to be completed, particularly with regard to the extent of groundwater / surface water interconnectivity in the region, especially along the Selenga River; and accumulation of persistent organic pollutants in the benthic sediments and biota of the Basin's rivers, deltas and lakes. Neither Russian or Mongolian law adequately stipulates clear and practical environmental quality standards for ground water and surface water. The two are inextricably linked in most river systems. The picture of water quality threats from industrial and mining sites remains incomplete; and measures on how best to handle residual pollution problems from abandoned mining sites have not been defined in policies on either side of the border. EIA procedures do not properly address biodiversity risks; and sectoral programs are operating without standards for minimization or reduction of impacts to biodiversity. Tourism laws and policies focus more upon the economic aspects of tourism development and promotion and give short shrift to detailing guidelines and training on mainstreaming biodiversity and ecosystem health management objectives into tourism planning and management practices, including utilizing new tools such as certification incentives for environmentally sustainable behavior by tourism operators.

Barrier #2: Weak policy and planning and institutional framework.

102. Despite decades of scientific explorations in and around Baikal, evidence of ecosystem degradation has not yet led to significant changes in regional decision-making mechanisms, particularly transboundary collaboration. In general, there is an abundance of information on point and non-point source pollution sources in the Basin. However, gathering, comparing, and synthesizing this information has been beyond any one organizations responsibility or ability, particularly for the transboundary Basin. This has resulted in an inadequate level of information to support the development of a scientifically-based transboundary Strategic Action Programme (SAP) for the transboundary Baikal Basin.

103. None of the existing bodies set up at bilateral and national levels (the Joint Task Force, and the Baikal Commission in Russia) have the authority, budget and cooperative framework necessary to reduce threats / barriers to water quality and biodiversity objectives. The Baikal Commission in Russia created for Lake Baikal has received inconsistent levels of support and its capacity to develop and enforce regulations and standards remains weak. Transboundary cooperation to unify protocols for data gathering and sharing is not yet in place. Capacities of local inspectors to control poaching, illegal fishing and grazing, are weak. Local administration and environmental inspectors are not capacitated to integrate biodiversity concerns into regional development plans; use of GIS technologies for biodiversity mapping is in its early stages at the local level; knowledge of ways to control invasive species is poor. Finally, the capacities of local experts to properly monitor the quality status and biodiversity dynamics of the ecosystem remain insufficient for the data to be used in decision-making. Basin-wide water quality data does not exist and no collaborative monitoring system is in place.

104. 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 mining and tourism sector investment projects. Environmental Assessment procedures require all such projects to be subject to an EIA, followed by a State Expert Review. Some projects will be subject to an additional State Environmental Expert Review for deeper coverage of environmental aspects. The table in Part VI of this project document 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 mining and tourism 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 guidance on this.

Timing of EIA: The established practice is that the EIA for mining or tourism projects is conducted after the economic and technical design has been developed, when it is actually too late or difficult to modify the project. 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.

Classical (soviet) design institutes are still not familiar with internationally acceptable EIA processes and products. Further, they do not place adequate attention to the inter-linkages between biodiversity, water quality, 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.

Mining 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: mining dust blowing on the adjacent territories during the storing process and ore transportation by railway and from dumping sites; pollution from mining settling pond covering large territories and having an adverse impact on biodiversity. These and other negative impact factors are prevalent and associated with the natural conditions of the Baikal Basin (strong winds and open terrain). Best practices are not followed in assessing the full transboundary effects and modeling of air and water pollution.

Barrier #3: Inadequate demonstration and replication of Best Available Techniques (BAT)/Best Environmental Practices (BEP) and awareness of transboundary BB issues.

105. In order for Mongolian and Russian stakeholders to achieve the development goal as enunciated under this project, innovation and replication will be required focussed on overcoming barriers and achieving a natural resource management regime that ensures ecosystem resilience and reduces threats to aquatic ecosystem health.

106. There is a plethora of scientific articles and professional experiencedetailingBAT/BEP on key issues relevant to the long-term ecological health of Lake Baikal Basin. What has been lacking are targeted demonstrations of practical alternatives to destructive practices. For example, the advantages of using mercury can often be eliminated by proper use of low-cost gravitational methods, but there is a lack of knowledge and experience in how to use such methods. Similar better alternatives exist for mining excavation practices and disposal of excavated earth, but there is little experience using such methods in the Baikal Basin. Also lacking is the urgency and imperative brought to the issue by larger transboundary perspective. There have been few if any collaborative transboundary demonstrations of best available techniques and best environmental practices relevant to strengthening the ecosystem health of the Baikal Basin.

107. Critical areas lacking this sort of transboundary collaborative demonstration and replication approach include: environmental governance experiences (i.e. Caspian Convention); mainstreaming biodiversity and ecosystem health into tourism and mining practices; mainstreaming science into sustainable sport-fishing activities; engaging local communities more effectively in sustainable use and conservation actions; expanding the understanding and policy recognition of the importance of clean ground-water to the health of surface water systems; and finally improving wastewater treatment using more cost effective technologies, including emerging green technologies.

108. With respect to tourism, the seeds of responsible, “green” tourism do in fact exist in the Baikal Basin, but there is no mechanism to help replicate best practices from these model operations, both in Mongolia and Russia. Their techniques are not shared and these types of practices are not mandated by tourism regulations and policies. Also lacking is any kind of positive incentive for tour operators/outfitters to adopt better practices through a voluntary certification scheme similar to the one in use by the Australian Ecotourism Association.

109. Inadequate awareness of transboundary BB issues. Obstacles to capacity building among involved stakeholders relates in part to peculiarities of public “environmental” awareness in the region. Such obstacles are connected with:

- Low level of awareness of the effect of environmental degradation on human health;
- Insufficient public recognition of the causes of environmental degradation in Lake Baikal and its basin water bodies;
- Insufficient understanding of the ongoing impacts of climate change on the BB and the resilience of its aquatic ecosystems;
- Narrow, provincial perspective on environmental protection hampers transboundary ecosystem-wide coordinated efforts;
- A lack of effective economic and policy tools to implement meaningful measures for industrial environmental safety;
- Inadequate level of practical monitoring to enable scientists and decision makers to see and understand trends in the important parameters of ecosystem health in the Baikal Basin;
- Inadequate level of priority placed by both Basin countries on collaborative transboundary efforts.

PART II: Strategy

110. In order to address the above barriers, the project proposes a 3-component approach. The objective of the project is to spearhead integrated natural resource management of Lake Baikal Basin and Hövsgöl Lake ensuring ecosystem resilience, reduced water quality threats in the context of sustainable economic development. The project design builds from GEF transboundary waters and biodiversity focal area experience. Included will be outcomes and outputs aimed at finalizing a Transboundary Diagnostic Analysis and a Strategic Action Programme as well as the mainstreaming of biodiversity standards into economic activities in the region.

2.1 Project Conformity with GEF Policy

Project consistency with the GEF Strategies and Programs and Portfolio.

111. The Project is aligned with GEF-4 strategic objectives and priorities for the International Waters and Biodiversity focal areas. In line with Strategic Objective-3 under International Waters, the project is designed to balance conflicting uses of water resources in transboundary surface and groundwater basins in the – Baikal- Hövsgöl basin. The project will reduce the threat that conflicting uses of regional water resources will result in irreparable damages to these linked unique ecosystems. To do that, the project relies on the classic IW tools: it will finalize the Transboundary Diagnostic Analysis and adopt a Strategic Action Programme (Component I), build capacities of key stakeholders in integrated water resources management and enhance functioning of the Russia / Mongolia Task Force on Transboundary Waters (Component II); test water quality technologies in Component III. At the same time, the project addresses BD SO-2 SP-4 *Strengthening the Policy and Regulatory Frameworks for Biodiversity Mainstreaming*. It amends policies on Environmental Impact Assessment and introduces biodiversity conservation standards for mining and tourism, (Component I), trains environmental inspectors in conservation law enforcement (Component II), demonstrates risk avoidance and mitigation approaches in copper and gold mining, as well as pilots green tourism (Component III).

112. Global environmental benefits. As an IW and Biodiversity Project under GEF-4’s program, this project will generate global benefits under both focal areas.

113. Under International Waters (IW): the project will enable stakeholders from Russia and Mongolia to improve collective management of the transboundary Baikal Basin and to implement strategic actions and

policy and institutional reforms and investments contributing to sustainable use and the maintenance of ecosystem services. More specifically:

- A Strategic Action Programme (SAP) for the transboundary Baikal Basin, agreed at the ministerial level, adopted by both countries. In the SAP, Russian and Mongolian stakeholders will for the first time enunciate a long-term vision for a resilient Baikal Basin ecosystem.
- The implementation of the agreed SAP will incorporate transboundary IWRM principles (including environment and groundwater) and policy, legal and institutional reforms.
- Strengthened transboundary institutional capacity for joint management of the Baikal Basin under existing bi-lateral agreements.
- Pollution levels in designated hot-spot monitoring areas will be reduced by 20% by end of project.

114. Under Biodiversity: the project will support country efforts to integrate biodiversity considerations into productive sectors that fall outside the environment sector. In particular, the project is designed to strengthen the policy and regulatory framework necessary for mainstreaming to take place in the Baikal Basin with respect to target sectors.

- The project will enhance protection of the unique Baikal Basin ecosystem, which includes a UNESCO World Heritage site and at least one RAMSAR site.
- At least ten policies and regulations governing target sectoral activities (mining, tourism, sport fishing) in both Russia and Mongolia will incorporate biodiversity management and conservation objectives.
- Enhanced protection will be established in at least 3 sub-basins throughout the greater transboundary basin totaling at least 500,000 ha of freshwater lake and river ecosystems.
- The project will achieve improved management and conservation of globally significant biodiversity, threatened and near-threatened species outside protected areas, in designated Essential Fish Habitats, with populations of target fish species (*Taimen*, *Lenok* and *Grayling*) stable or increasing.
- The project will suppress threats to biodiversity and water quality, originating from unsustainable mining and tourism development. Thus, the project can become a model of a truly integrated TDA/SAP, which takes into account surface and groundwater aspects on one hand, while removing stresses to threatened aquatic flora and fauna on the other.

2.2 Project Objective, Outcomes and Outputs/activities

Rationale

115. Building upon a solid, decades-old baseline of bilateral cooperation between Russia and Mongolia on the transboundary waters of the Selenga River and on the growing economic baselines of the mining and tourism sectors, GEF support will catalyze the development and implementation of a Strategic Action Programme (SAP) for the transboundary management and conservation of the Baikal Basin's transboundary aquatic ecosystems. The project will also support efforts from both national and local governments and civil society to mainstream conservation measures into productive sectors policies and practices by way of strengthening the policy and regulatory framework for mainstreaming biodiversity in order to protect and sustainably utilize the unique aquatic ecosystem stretching from Lake Hövsgöl to Lake Baikal.

Objective:

116. To spearhead integrated natural resource management of Baikal Lake Basin and Hövsgöl Lake ensuring ecosystem resilience, reduced water quality threats in the context of sustainable economic development.

Outcome 1: Strategic policy and planning framework.

117. Work under this Outcome will develop a detailed Transboundary Diagnostic Analysis (TDA) of the Baikal / Selenga Basin, that is then used to generate a Strategic Action Programme for shared actions by the Russian Federation and Mongolia. This TDA/SAP effort will build upon lessons learned by more than 30 GEF TDA/SAP projects, with special attention to TDA/SAP projects such as the Danube and Dniro Rivers, Lake Ohrid, and Caspian. Building from other TDA/SAP efforts, the Baikal Basin effort will emphasize mainstreaming biodiversity management objectives into economic sector policies and practices, to facilitate the maintenance of essential aquatic ecosystem functions that sustain human welfare. This TDA/SAP will provide a holistic review and strategy development for the transboundary basin-wide ecosystem.

118. To support this TDA/SAP process, this outcome includes a series of dedicated studies to: a) identify strategies to deal with water quality risks that are poorly understood and documented, including PTS and nutrient loads in the Selenga Delta; an assessment of the epidemiological risks to people in Buryatia and Mongolia; b) highlight surface and ground water interactions within the Selenga river basin and corresponding pollution threats; and c) identify industrial pollution hot-spots from a basin-wide perspective. These studies will help to refine and further detail the preliminary TDA developed during the project preparatory phase.

119. The SAP will build from the TDA results and will be completed, approved and under implementation by the final year of the project. The SAP constitutes a binding agreement between the two countries. It will identify goals for ecosystem protection and include milestones and indicators for attainment of the goals. In order to achieve the jointly-agreed goals, both countries will be expected to develop biodiversity conservation standards for tourism, mining, fisheries and to implement sub-basin watershed management plans that incorporate water quality and biodiversity objectives.

Output 1.1. Transboundary Diagnostic Analysis of threats to the Baikal Basin ecosystem including Hövsgöl lake in Mongolia completed.

120. The first activity under this output will be the establishment of a Science Advisory Group (SAG) to support the Baikal / Selenga Basin Joint Commission, to be created from the existing Transboundary Waters Joint Task Force. The SAG will include experts from both countries, as well as international experts to share experiences and best practices. The SAG will assist the Joint Commission by reviewing the enhanced TDA and the newly developed SAP (see below) and providing recommendations.

121. The second activity under this output will revise and enhance the preliminary TDA developed during the project preparatory phase. During the project's first year, the PMU will organize and support a Baikal Science Symposium bringing together the top scientists working on various aspects of Baikal Basin ecology, from groundwater and surface water pollution, to pasturelands, to fish and aquatic invertebrate studies. The meeting will serve as the kick-off meeting for the TDA finalization.

122. The preliminary TDA establishes a good basis for rapid completion of a TDA during the project's first year. An expert working group will focus upon some specific priorities for enhancing the preliminary TDA. The first priority will be to elaborate a causal chain analysis to ensure that root causes of threats to aquatic ecosystem health are considered and prioritised. A second priority will be to establish baselines and SMART indicators of success for water quality and biodiversity that can be used to measure results as the SAP is being implemented. As a part of the TDA, an assessment of water pollution threats through surface and ground water interactions (intermixing) will be conducted (in connection to Output 1.3). As a part of the TDA preparation process, the Project Management Unit (PMU) will organize a series of

stakeholder consultations with NGO's, industry and local government representatives, to review ecosystem threats.

123. In addition, other work conducted by the project and described in the following pages will strengthen the TDA effort. In particular, additional targeted studies and analyses will identify:

- Inflow and outflow parameters into the Selenga Delta;
- Groundwater pollution risks and ground / surface water intermixing;
- Stock assessments of key sport fishing species: (Grayling, Lenok and Taimen) plus Sturgeon, Omul, and the Nerpa freshwater seal;
- Extent and causes of water borne disease affecting human populations;
- Assessment and mapping of illegal activities impairing biodiversity, including poaching, illegal fishing and forestry;
- Location of significant industrial pollution 'hot spots' and determination of the extent that they constitute threats to ground and surface waters.
- Location of strongholds of aquatic biodiversity and ecosystem health in the Basin as well as degraded watersheds to facilitate maintaining the former and improving the latter. This will include a more detailed gap analysis and mapping of existing data on protected areas, biodiversity, and productive sector practices and their impact (Essential Fish Habitat (EFH), PA coverage, species distribution, abundance and condition, active mining claims) in both countries. The mapping analysis will be driven by the joint objective to conserve biological diversity and strengthen aquatic ecosystem resilience in the Baikal Basin.

124. The TDA is not planned to be a static report, completed and then placed on a shelf. Instead, the expectation is for a periodic updating with new information. During the project 4th year, the PMU will support the updating of the TDA into the first of what is intended to be a periodic "State of the Baikal Basin Report." The goal will then be for the State of the Basin Report to be updated every 3-5 years by the Joint Commission building on the original TDA and other sources, such as Red Books on threatened species, and ongoing studies in the area.

Output 1.2. Study on the Selenga Delta habitat and water quality issues, including toxic pollution and nutrient loading, water level fluxes, sedimentation levels, and the health of the benthic zone.

125. The purpose of this study is to develop a baseline and ongoing monitoring of inflow and outflow values for the Selenga Delta, including flux and balance calculations of substances. This will include establishing or upgrading basic monitoring sites at inflow, midpoint and outflow locations in the Delta. The study will include analyses of the composition of benthic systems and sediment, diversity of aquatic flora and fauna, and presence of alien species. Pollution loading will be monitored and climate variability effects will be studied. The review will also consider conservation measures for the biotopes for migratory birds, waterfowls and near-water species of flora and fauna within the Delta. The study will be carried out during project years 1 & 2, with ongoing monitoring through project conclusion.

126. Develop and present analysis on the impact to delta flora and fauna of changing water conditions, including recommendations on optimal flows; as well as in-stream constructed wetlands and other design options to reduce the flow of pollutants into and through the delta. This enhanced monitoring of Selenga Delta environmental conditions will be continued on a permanent basis with support from Baikalpriroda.

Output 1.3. An assessment of transboundary problems in integrated surface and ground water resources management of the Baikal Basin and corresponding pollution threats, focusing on: stress on ground and surface water resources; deterioration of water quality in both surface and ground waters of the Basin; and vulnerability of groundwater dependent ecosystems.

127. Work under this output will be implemented jointly with UNESCO/IHP and will explore the role of integrated surface and ground water management in water resources sustainability, as well as the role of

groundwater in maintaining or undermining the ecosystem health in the Baikal Basin, looking at both quantitative and qualitative characteristics. Ground water and surface water systems are often managed independently. In order to ensure the sustainability of water resources, it is essential to manage surface and ground water systems in an integrated manner. The assessment will explore the integration of the surface and ground water systems into water resources management in order to promote an integrated approach to solve problems related to water quality deterioration, groundwater sustainability, and water supply (conjunctive use of surface and ground water). The identification and assessment of vulnerability of groundwater dependent ecosystems will also be undertaken.

128. Managing surface water and ground water in an integrated manner is very important in the Baikal Basin, as there is large exchange flows between surface water and groundwater through hydraulic interactions between rivers and shallow aquifers. Therefore, the assessment will also look into pollution of surface water as a cause of groundwater contamination and, conversely, pollution of groundwater as a cause of surface water quality deterioration. As a cause of potential groundwater pollution, the assessment will evaluate the impact of industrial and urban pollution such as inadequate sanitation and wastewater facilities, poor solid waste management, urban stormwater infiltration, and mining activities.

129. Work under this output will inform the enhancement of the TDA under Output 1.1 and will undertake qualitative and quantitative assessment of surface and ground water resources of the basin using case studies in specific locations of the basin, modelling methods and available monitoring sites. Sampling sites in both Mongolia and Russia will be chosen based upon availability of data and ease of obtaining additional samples. A pilot demonstration of practical applications of isotopic methods in evaluating nutrient/pollution discharge load through surface and ground water interactions (based on modeling of surface and ground water flows and groundwater interactions with rivers) will be undertaken. Well-established techniques using stable isotopes of hydrogen and oxygen as markers of water source have been applied in water resource investigations for several decades. Isotope methods are powerful tools when applied to the intractable problems of source attribution for the most common groundwater contaminants. This information is essential for groundwater resources assessment covering issues such as surface-ground water mixing, groundwater quality and drawdown and for defining and estimated the impact of degraded watersheds and aquifer recharge zones in the Baikal Lake Basin.

130. Work under this output will put forward policy recommendations for integrated surface and ground water management with a view to develop more comprehensive surface and groundwater protection policies. Results of the assessment will also be used to influence and develop curricula for training / capacity building activities (see Output 2.3) to improve environmental inspections and enforcement of regulations for avoiding surface and ground water pollution.

131. The assessment will also include recommendations and cost considerations for changes to existing national and local groundwater management policies for each country, including inter-sectoral integration and planning, well head protection, and expanded groundwater monitoring (see Output 2.4).

Output 1.4. Pollution hot spot assessment of the transboundary Baikal Basin, including a prioritized list of projects to be considered for future investment, the development of prefeasibility studies and revised regulations to reduce industrial pollution loading in the Baikal/Selenga basin.

132. An initial hot spot analysis was developed for the preliminary TDA. The full project will further elaborate this review, with a more detailed analysis and prioritization of the most significant hot spots. The hot spot assessment will identify and map all significant hot spots in the Basin, including both active and closed industrial facilities. A prioritized hot spot list will be created, based on the level of known and potential risks to surface and groundwater, the pollution spot's proximity to: a) waters used for drinking water abstraction; b) Essential Fish Habitat and protected areas (including Lakes Baikal and Hovsgol). Some problematic sites or areas will achieve hot spot status due to the specific hazardous pollutants used in processes or stored that is vulnerable to a natural disaster such as an earthquake or flood (*i.e.* the enormous tailing pond in Erdenet, Mongolia).

133. It is evident that the Baikalsk Pulp and Paper Mill (BPPM) remains the most serious surface and groundwater pollution threat to the Baikal ecosystem in the central ecological zone of the Baikal natural territory. The BPPM will be considered but will not be the focus of attention due to ongoing government efforts to finance a closed loop wastewater system and extensive public pressure to close or improve significantly environmental management at the site.

134. Part of this enhanced hot spot review will rank the upgrade needs for Selenga Basin municipalities in Mongolia, including the identification of ongoing and planned water and sanitation projects. The PMU will provide additional assistance to a limited number of high risk / high priority hot spots for: a) development of pre-feasibility studies for remediation on closed facilities; b) training for improvements in PTS and POPs management, (Output 3.1), and; c) recommendations of environmental investments for high priority reductions in pollution discharge. Recommendations will also be developed to strengthen regulations and inspection policies for large industrial facilities in the region in light of the findings from the hot spot analysis.

135. As a part of pollution hotspot assessment, an assessment of pollution in Kharaa River Basin (one of the main tributaries of Selenga Basin) through a case-study(ies) of urban water pollution will be undertaken by the project jointly with UNESCO, in cooperation with an ongoing German-funded project in the basin.

Output 1.5. Strategic Action Programme (SAP), including joint actions to enhance ecosystem protection.

136. Building from the TDA findings, the project PMU will convene and support an ad hoc working group to draft the Strategic Action Programme for consideration by the Steering Committee and the Joint Commission (See Outcome 2). The SAP will be developed, negotiated between both governments and signed by the two countries during the third year of the project, with implementation supported in year four. The SAP will focus on how to implement the main priorities identified under the TDA, including the harmonization of legal and regulatory frameworks in Mongolia and Russia parts of the Baikal Basin dealing with maintaining and improving water quality and the overall health of aquatic ecosystems.

137. There are differences in the legal and regulatory framework on the comprehensive water resource management in the Russian Federation and the Republic of Mongolia. For example, Mongolian laws do not require the development of a Scheme of Comprehensive Use and Protection of Water Bodies in the Selenga River Basin. In accordance with Mongolia's Water Law, only water resource management plans are required. At present, there is no methodology for the development of plans. This is just one of the issues to be considered in terms of harmonization of legal structures through a Strategic Action Programme.

138. The SAP will use a basin-wide perspective focusing on the Baikal Basin as one whole, transboundary ecosystem entity, identifying barriers preventing better basin-wide collaborative management, and clarifying key emerging threats to aquatic ecosystem health such as invasive species, mining pollution, and increasing nutrient loading. The SAP will apply "resilience thinking" in some detail, with detailed recommendations on how to maximize resilience across the Baikal Basin ecosystem – both from a natural ecosystem and human social system perspective. The SAP will include a study on invasive species threats and their implications and will identify and map two of the most significant invasive species risks and pathways and develop and cost strategies for avoidance / mitigation.

139. The Baikal / Selenga Basin Joint Commission will be the main body negotiating the final drafts of the SAP, with advice from the SAG. SAP joint actions are likely to focus on legal and regulatory reforms, monitoring protocols, sharing of information, ongoing support to the Joint Commission, consideration of a new transboundary waters treaty, consideration of establishing cross-border protected areas and a new category of aquatic ecosystem strongholds within the Basin and other measures. The PMU will then assist both countries during the final project year on SAP implementation, including elaborating national action plans and the monitoring of initial achievements.

Output 1.6. Biodiversity conservation standards and biodiversity management objectives for tourism (including sport fishing) and mining integrated in SAP and local legislation, regional development plans; with amendments to EIA policies to address biodiversity risks.

140. The first activity under this output will review international and regional examples of best practice in mainstreaming biodiversity conservation into productive sector policies and practice. Several model ecotourism businesses already operate within the Basin, focussing on adventure travel, and low-impact, high-value fly fishing. Based upon this review, stakeholders will elaborate best practice conservation standards for tourism and mining.

141. While both countries have a body of existing legislation on conservation and water resources management, these environmental measures are often trumped by contradicting policies and actions in other sectors, including agriculture, industrial development, power generation, tourism and transportation. This output involves a study of overlapping authorities and recommendations on measures to mainstream biodiversity conservation into other economic priorities.

142. The second activity under this output will mainstream biodiversity criteria and objectives into the EIA process affecting the mining and tourism sector in Russia's Baikal Basin. This activity is at the level of the governance framework for the mainstreaming of BD into the EIA process (regulations, and capacity). Work will focus specifically upon on making the elements of the EIA process more biodiversity relevant and focused, involving the Baikalkumvod, EIA expert organizations and consultancies, as well as mining companies. The matrix below summarizes the type of input the project will provide to strengthen the governance framework for the mainstreaming of BD into the EIA process. GEF funds will not be used to conduct EIAs.

Matrix 1. Mainstream biodiversity criteria and objectives into the EIA process

Main Steps of the EIA Process	Actions/Entry points for Biodiversity Mainstreaming.
O&G operator submits project proposal to the MNRE for screening to determine the need for EIA, for State Expert Review or State Environmental Expert Review.	Biodiversity checklist developed to help MNRE screen projects for biodiversity issues. This could include use of preliminary screening questions as to nature of the project and likely impact vis-à-vis primary and secondary effects on biodiversity. Guidelines for local MNRE offices in Baikal region on how to screen EIA's from a biodiversity mainstreaming perspective to ensure that the EIA incorporates biodiversity issues into its assessment. Clear, simple, easily applied guidelines.
⇒ Optional site visit/verification exercise may be required to aid the process.	Biodiversity checklist to assist in determining the need for site visit/verification exercise. - What kind of verification would be needed from a biodiversity perspective? - What should MNRE staff look for on a site visit?
⇒ Conducting the EIA: mining or tourism developers often contract independent consultants and private consulting firms to gather baseline data, consult with stakeholders, and prepare the EIA report.	Guidelines for the Russian consulting firms on how to incorporate biodiversity concerns into the work developing the EIA.
⇒ Mining and/or tourism operators submit draft EIA report to MNRE for review.	Guidelines on how to analyze and assess biodiversity information and present it in an understandable way in the final EIA report. Best practice examples.
⇒ In-house MNRE review of the draft EIA; comments/feedback provided to mining or tourism operator.	Review guidelines for MNRE on how to assess the biodiversity aspects of an EIA report – what are the key central elements that should be assessed? How can they suggest improvement in clear, implementable recommendations? A checklist of questions that are reasonable and answerable in the Baikal

Main Steps of the EIA Process**Actions/Entry points for Biodiversity Mainstreaming.**
region context will be prepared and adopted.

143. Key issues such as how practically to enhance EIA reporting done by organizations and consultancies in the Baikal region of Russia. The action/entry points will be used as training entry points for these key stakeholders in helping to improve the EIA reporting process as it relates to biodiversity. Independent reviews of EIA reporting will be conducted to measure the improvement of EIA reporting and its incorporation of biodiversity elements, as reflected in the project's results framework.

144. Project resources will also bring together an expert working group to review and update the biodiversity aspects of the existing mining and tourism sectoral guidelines for EIA in the Baikal region. Specific, detailed updates will be made that incorporate biodiversity conservation objectives into the process will be made in close consultation with the Baikalkumvod.

Output 1.7. Sub-basin watershed management plans incorporating biodiversity management and ecosystem resilience objectives.

145. Work under this output is also a demonstration (see Outcome 3) of how to mainstream biodiversity management and ecosystem resilience objectives into sub-basin watershed management plans in both Russia and Mongolia.

146. The Lake Baikal Biodiversity Conservation Strategy established a framework for region-specific watershed-based biodiversity conservation programs in Russia, with three sub-basin programs launched: (Goloustnaya Watershed/Irkutsk, Khilok Watershed/Zabaikalsky Krai, Tugnuy-Sukhara Watershed/Buryatia). One of these three existing programs will be selected as the model for mainstreaming biodiversity and ecosystem health concerns into watershed management planning.

147. Work under this output will assess current basin management strengths and weaknesses and launch capacity building and training programs (consistent with output 2.4.) for sub basin managers on integrated planning, mapping using GIS, and monitoring of aquatic ecosystem health and biodiversity. Russian experts who take part in the training described under Box 1 (Outcome 2) will also play an important role in leading the use of cutting edge models for river system analysis in the face of climate change. Workshops will then be held with agencies focusing on industrial development, transportation and tourism to forge closer cooperation.

148. Replication of this mainstreaming of biodiversity management and ecosystem resilience objectives into integrated water resource management (IWRM) planning will be replicated in two sub-basins in Mongolia's Baikal Basin: the Ider and the Egiin.

149. In Mongolia the effort will build upon previous watershed management planning work within the Selenga Basin, focusing in on a discrete sub-basin or watershed to demonstrate watershed management planning that incorporates biodiversity management and ecosystem resilience enhancement objectives in Ider, Orkhon, Egiin sub-basins. Each one of these sub-basins is a stronghold for aquatic biodiversity in the Baikal Basin and contains essential fish habitats (EFH). Baseline data will be collected on economic activities and their impacts on the environment: (e.g. water quality, aquatic biodiversity). This will be followed by drafting the sub-basin management plans, presenting the plans to key stakeholders in workshops, revising and resubmitting the plans for government approval. Training and capacity building will also be launched for relevant resource managers at the state and local levels on the importance of groundwater to the overall health of each watershed, including surface water and plants. Peer-to-peer exchanging of lessons learned between Russians and Mongolians will be critical.

Outcome 2: Institutional Strengthening for IWRM.

Capacity building will occur at the transboundary, national and local levels in support of Russian and Mongolian efforts to establish effective structures and mechanisms for protecting water resources and biodiversity through integrated basin management. The Joint Commission for the Baikal Basin will be established and capacitated. One inter-ministerial committee will be set up each in Russia and in Mongolia, tasked with managing the decision-making processes for approval and implementation of integrated sub-basin watershed management plans. Basin-specific National Capacity Self-Assessments will be carried out and used to identify highest priority training and management support at the regional and basin level. Training services will be delivered to key stakeholders on the topics of: environmental impact assessment (EIA) development, industrial and mining site inspection, intercalibration of water quality / aquatic system laboratories and training in bioassay techniques, and utilization of geographic information systems (GIS) for mapping threats to ground and surface water resources, enforcement of water quality and biodiversity regulations. Country protocols for the Baikal Water Quality Monitoring Program will be harmonized and set in use using upgraded monitoring stations.

Output 2.1. Joint Commission for the Baikal / Selenga Basin established and capacitated on the basis of the current joint Russian - Mongolian Task Force on Transboundary Water Use and Protection.

150. Currently, cooperation between the Government of the Russian Federation and the Government of Mongolia on the Selenga River and Lake Baikal is governed by the “Agreement on the Protection and Use of Transboundary Waters” (Ulan-Bator, 11.02.1995). The agreement established a Joint Task Force, chaired at the Minister-level, to facilitate co-operation to protect the Selenga river.

151. The Project will assist the two countries to enhance the activities and responsibilities of the Joint Task Force through the formation of a new Joint Commission, with expanded participation by other relevant sectors and by civil society. The Joint Commission is envisioned as a policy-setting organization, with nationally-appointed natural resource officials from the Russian Federation and Mongolia. In support of this body, a Science Advisory Group (SAG) will be created to assist the Joint Commission by providing recommendations in support of the ongoing implementation of the SAP. The Joint Commission will meet annually and among its duties will oversee negotiations on the TDA & SAP. The PMU will support the Joint Commission with technical backstopping and financial support for annual meetings, to facilitate the contributions of the Science Advisory Group; to aid the Joint Commission review process for TDA and SAP approvals and to provide technical advice in Joint Commission efforts to draft a new transboundary treaty. Project resources will support more frequent working meetings of Joint Commission members related to TDA and SAP review and approval.

Output 2.2. Inter-ministerial committees established at national levels.

152. Both countries will be expected to form or utilise existing interministerial mechanisms for discussing and agreeing on the approval of recommendations emanating from the Joint Commission, in particular the TDA/SAP and strategies for mainstreaming conservation into economic development policies. Russia has already established the Interagency Commission on the Baikal Lake Protection Issues. In Mongolia, project resources will assist the MNET and the Water Authority in establishing an Interagency Commission or Working Group on the Selenga Basin.

153. Each National Interministerial Committee will be tasked with managing the decision-making process for approval and implementation of Baikal basin initiatives, including integrated sub-basin watershed management plans and the TDA/SAP. Each will include the participation of key natural resource, environment and economic development ministries, plus foreign and finance ministries. Each Committee will meet at least twice annually to discuss mainstreaming of Baikal / Selenga biodiversity and water quality issues into economic development policies

154. To support the committees' work, a review of the institutional and legal framework for water resources management will be conducted, under guidance of an international expert on water law. This work will also include consultations on transboundary groundwater resources will be undertaken with a view of identifying transboundary aquifers. Project resources will support, at country request, periodic interministerial meetings and with PMU participation in order to clarify purpose, benefits and impacts of proposals.

Output 2.3. Training program developed and implemented for key actors in an improved and enhanced, long-term transboundary management of the Baikal Basin.

This training program will be focused on supporting the implementation of the Baikal / Selenga SAP. Training will target the range of key actors, including:

- staff positions in the organizations most immediately responsible for watershed and basin-wide management of the Baikal Basin's aquatic ecosystems in both Russia and Mongolia [Baikalkomvod, Buryat Regional Authorities, Baikal PA, Water Agency of Mongolia, Ministry of Nature, Environment and Tourism - Mongolia];
- academic experts in hydrology, aquatic ecosystems and biodiversity, mining, fisheries, and tourism.
- leading civil society organizations with recognized partnership roles in sustainable management.
- leading consultancies/organizations who actually elaborate EIA reports on the Russian side of the Baikal Basin.

155. Work under this output will be guided by an expert in training needs assessment but apply an informed "self-assessment" approach. Challenges posed by a rapidly changing socio-economic and climatic context will require skills and approaches that are only in their early stages of development in the Baikal region. To be sure, there is the common problem of overlapping responsibilities among

Box 2: Training in new tools for new challenges.

In addressing the issue of resiliency, project resources will train a core working group of experts from both countries "on the job" to employ cutting-edge scientific knowledge toward interpreting potential CC impacts at multiple scales as well as evaluating and planning for ecosystem resiliency to lessen impacts. This training will support the SAP process by helping stakeholders to balance how to predict and plan for CC impacts with efforts to track and manage the impacts across the Baikal Basin's aquatic ecosystem. Training will be conducted in how to analyze and predict:

- fisheries sensitivities to changes in water temperature and habitat availability;
- native and invasive riparian plant species survival and distribution patterns;
- changes to watershed sediment budgets, sediment transport dynamics;
- Restoration planning to emphasize adaptability and resiliency to climate change;
- Tracking of impacts through long-term monitoring;
- Mitigation strategies for focal species and habitats.

The RIPPLE model integrates geomorphological information with aquatic habitat and biological data, and the anthropogenic factors affecting them, for an overall understanding of how these attributes affect fish. Using RIPPLE, stakeholders can more effectively develop restoration measures, assess current conditions quantitatively to prioritize management actions, and evaluate management options under various scenarios. <http://software.nced.umn.edu/ripple/download/index.html>.

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Some models allow stakeholders to predict stream temperatures for entire watersheds while only requiring a minimum of data. Such models draw upon existing empirical and theoretical data combined with solar radiation, energy balance and hydrologic models, to calculate (1) the mass transfer of heat between the river and environment, and (2) downstream transport of heat. Temperature predictions are then displayed using GIS.

The model can predict water temperature metrics at different time intervals and provides a way to identify portions of the river where elevated temperatures may degrade fish habitat. The model can also identify optimal habitat across the Basin.

different agencies and inadequate coordination among those same agencies. For example, in Russia's portion of the Baikal Basin, twenty-seven units of executive organizations govern the Baikal Natural Site, in addition to other agencies with overlapping authorities. The problem of coordination of inspections and cooperation among those bodies is vital.

156. However equally important will be the capacity to monitor climate change impacts and to respond with new and different tools and management solutions than have been tried in past years. Climate change poses new questions (e.g. "How do we maintain resilience of aquatic ecosystems, including Lakes Baikal and Hovsgol?") and challenges old assumptions (e.g. "rivers are simply water flowing downhill – they are not living ecosystems.") The capacity to answer these questions with innovative thinking and re-think old assumptions in the face of new challenges will be critical to empowering Russian and Mongolian stakeholders to manage the Baikal Basin's ecosystem services well into the 21st century.

157. The training needs assessment expert will work closely with a expert working group comprised of policy and science experts from both Russia and Mongolia to carry out the needs assessments. The assessments will provide detailed, practical recommendations for compliance with international obligations, especially focusing on mainstreaming biodiversity management objectives into productive sector practices. Stakeholder consultations and project preparation analysis has already identified some key areas for capacity building: (a) integrated basin planning and management, (b) GIS & spatial planning, (c) EIA reporting and the mainstreaming of primary and secondary biodiversity impacts into this work, (d) avoidance and containment of invasive species, (e) environmental monitoring system design and management, (f) enforcement of water quality and biodiversity regulations.

158. Training and capacity building programmes on water quality issues, focusing on transboundary water resources management and integrated surface and ground water management, will be developed and conducted by UNESCO for key stakeholders, including water managers, decision makers and trainers.

159. As noted elsewhere in the Project Document, there will be a variety of outputs that identify training needs that will filter into this training output. The PMU will work with two or more institutes from within the region to develop web-based training modules for key actors in critical sectors such as mining inspectors, water agency staff, environmental inspection officers, and tourism managers. While there will be some on site training, a key feature will be distance learning through web-based offerings. Certification will be a feature of the training programs, to emphasize technical skills development. Results will be monitored through questionnaires and web communications, with lessons learned incorporated into subsequent curriculum development. There will be a completion review and post-project continuation planning.

160. One of the critical areas of emphasis for training will be in the use of cutting edge scientific tools to interpret potential climate change (CC) impacts at multiple scales (transboundary Basin, national, and sub-watershed). This training will support the overall TDA and SAP development process under Outcome 1 and will be oriented to supporting environmental analysis and reporting over the long-term, building on the TDA/SAP with biannual "State of the Baikal Basin Environment" reports. See Box 1 for details.

161. The training program will be carried out during project years 2-4, with demonstrated skills and knowledge improvement for a minimum of 100 persons from national and local governments in both Russia and Mongolia.

Output 2.4. The harmonized Baikal Basin Water Quality Monitoring program set under implementation, including upgraded monitoring stations.

162. Monitoring systems and data analysis methodologies are not consistent across the region and there is considerable variation in monitoring capabilities, equipment and activity. Work under this output will

enable Russian and Mongolian stakeholders to take modest steps in standardizing monitoring of joint, key monitoring parameters for aquatic ecosystem health and biodiversity in the Baikal Basin.

163. Under the auspices of the Joint Commission, project resources will assist the two countries in identifying, assessing and mapping water quality monitoring activity in the basin, including monitoring site locations, type of monitoring, technology used, and contaminants screened. Monitoring protocols and capabilities will also be analyzed. Joint monitoring of parameters will be endorsed by the Joint Commission and a limited number of sampling sites determined throughout the Selenga river basin. Sampling frequency, the inter-calibration of methods and techniques and mechanisms for joint analysis of data will also be agreed.

164. Project resources will support stakeholders' efforts to elaborate simple, shared methodological frameworks for sampling and analyzing data to enable comparability of key environmental data parameters on the state of aquatic ecosystem health across the transboundary Baikal Basin. Project resources will assist in establishing a baseline for the agreed upon monitoring parameters in the first year of project implementation, thereafter annually showing pollution loading levels and engendering a satisfactory degree of confidence in, and comparability of, water quality and species monitoring data across the Baikal/Selenga Basin.

165. The Project will also assist in establishing an early warning program to notify downstream users in the case of acute threats from water-borne pollutants and will coordinate pollution warning/alert/response simulation(s). Recommendations and cost enhancements to the existing monitoring regime will be provided and a follow up assessment on monitoring progress will be done during year 4.

166. Also key to this harmonized water quality monitoring program will be climate change oriented monitoring at either "end" of the Baikal Basin – in Lake Baikal itself (lower end) and in Mongolia's Lake Hovsgol (upper end). Existing climate monitoring should be conducted in at least four sites in each lake⁴. Measurements should include: precipitation, air temperature, wind speed and direction, solar radiation, and dates of freeze and thaw. Indeed, many if not all these parameters are monitored in Baikal, but not in Hovsgol. Project resources will be used to enable both sides to identify a smaller subset of priority parameters for monitoring and to enable the Mongolian side to incorporate these into existing meteorological monitoring stations already in place in the region. In addition, ongoing permafrost monitoring will be continued. Much of this information has already proved useful in understanding climate change⁵.

167. Monitoring of physical and chemical parameters will seek to maintain comparability with earlier monitoring efforts on Lake Hovsgol, such as the joint Soviet-Mongolian research in the 1970s – 1990s and the Japanese expedition in 1997-98. Measurements should include temperature, chlorophyll a, and dissolved oxygen (DO) profiles; and to the extent possible pH; nutrients (total P & N, soluble reactive P, nitrate); dissolved organic and inorganic carbon; and major anions and cations. Existing water level monitoring efforts should also be continued as there has been a recent rise in water level as a result of melting permafrost and glaciers.

168. Project resources will be used to fund cost-effective monitoring work using instrumented buoys. High temporal resolution monitoring of temperature and DO profiles (among other parameters) can be accomplished using instrumented buoys. Buoys require less boat time (only setting in the spring and retrieving in the fall) and can therefore be a cost-effective approach. This work would learn from the global community of limnologists working with buoy-based lake monitoring: <http://gleon.org>.

⁴ In Hovsgol: Hatgal, Moron, Rinchenlhumbe, and Hankh; In Baikal: to be determined

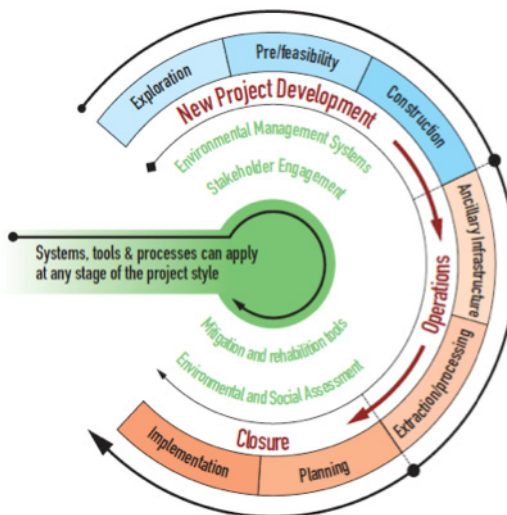
⁵ Goulden, Sitnikova, Gelhaus, and Boldgiv. 2006. The Geology, Biodiversity and Ecology of Lake Hovsgol. Backhuys Publishers, Leiden

Outcome 3: Demonstrating methods and approaches for water quality and biodiversity mainstreaming.

169. Pilot projects will be launched in partnership with local industries to demonstrate techniques for improving water quality and mainstreaming biodiversity management objectives into sustainable economic development. Each pilot will include a robust replication element, with peer-to-peer training conducted at the pilot site for relevant policy level, enforcement level, and operator level stakeholders

170. This will include pilots carried at copper and gold mining sites to demonstrate avoidance and mitigation of biodiversity risks, primarily focusing on tail pond management and avoiding soil and groundwater contamination. This will also include safe and effective disposal of livestock carcasses to cease periodic anthrax outbreaks. Further pilots will deal with “greening” the tourism sector, designed to inform the decision makers within the Baikal Special Zone of Tourism on biodiversity-compatible tourism opportunities (ecotourism). In parallel to demonstration activities, the project will support local environmental inspectors with better enforcement capacities, enabling them to better control illegal fishing, logging, and mining. Techniques for controlling the introduction of invasive species will be tested, alongside with support to strengthen native fish populations. Finally, in order to trigger replication and ensure the sustainability of results, the project will set a Baikal Center for Technology Dissemination, conduct a series of forums for industries, and support local NGO actions.

Figure 1. Integrating biodiversity management objectives into the mining cycle.



Output 3.1. Pilot projects on biodiversity conscious mining approaches.

171. Under this output, project resources will enable local industries and local level authorities to mainstream aquatic ecosystem and biodiversity management objectives into mining policies, planning, operations. Mining has the potential to affect biodiversity throughout the life cycle of a project, both directly and indirectly. Direct or primary impacts from mining can result from any activity that involves land clearance (such as access road construction, exploration drilling, stripping or tailings impoundment construction) or direct discharges to water bodies (riverine tailings disposal or tailings impoundment releases).

172. The potential for significant impacts is greater when mining occurs in remote, environmentally sensitive areas. Due to the continuing demand for minerals, the depletion of resources in readily accessible areas and changing technologies and economics in the mining sector, mining is being proposed increasingly in remote and biodiversity-rich ecosystems that were previously unexplored and undeveloped for minerals – areas very much like many places within the Baikal Basin.

173. Looking to the future, mining will likely continue to expand in the Baikal Basin. Poorly managed expansion with haphazard regulatory enforcement lies at the core of destructive impact on the Baikal Basin’s aquatic ecosystem health. Issues faced as a result of increased mining activity in the region include groundwater pollution, erosion and resulting sedimentation in the rivers, toxic chemical release, pollution of soil and of ground water-and surface waters, and poor rehabilitation of land. Among the most latent impacts of human health are those relating from the use of mercury.

174. Under this pilot work, strategies will be developed by experts and implemented at up to four sites for mainstreaming aquatic biodiversity management objectives into mining practices, focused on avoidance and mitigation of sedimentation and pollution risks. The pilots will demonstrate effective mining expansion planning and management, and effective enforcement of existing environmental and mining laws and policies on the books. One pilot will focus upon demonstration best practices in siting a new mine in order to avoid soil and groundwater contamination and impacts on surface water systems. This will include piloting decision making processes that consider cumulative (primary and secondary) impacts upon biodiversity from mining activities that normally would not be recognized.

175. A second pilot will demonstrate model tailing pond construction and management. The third pilot site will be an alluvial/artesian gold mining site, as these represent mining sites with a high risk for stream bank erosion and chemical discharges into surface and groundwaters. The fourth pilot will focus on the proper decommissioning of a closed, exhausted mine; such improperly closed mines constitute a growing problem in the region. Natasha – can we say anything here about co-funding from the Russian side or baseline funding/program that we will work with?

176. These pilot sites will be selected from among the pollution hot spots identified under Outcome 1. A tentative list of geographic areas where the pilot sites will be chosen in Russia has been analyzed during the PPG. Baseline section of the project document (para. 37-45) includes analysis of the potential sites/deposits in Russia and in Mongolia. Final selection of the demo sites will be conducted at the full project phase as it has to be based on the preliminary outcomes of the TDA and on the updated consultations with the companies. The following selection criteria will be used to define the final set of sites:

- (i) High impact on biodiversity from mining activities, including toxic wastes
- (ii) Location of demo sites within the boundaries of the buffer zone of the Baikal Nature Territory with special protection/economic regime (for Russian sites)
- (iii) Ability to demonstrate different technologies/solutions – diversified production/industrial sites – for further replication.

Output 3.2. Demonstration and strategy development for (dead) livestock disposal to cease periodic anthrax outbreaks.

177. There are significant risks to people's health caused by a threat of anthrax in Barguzinsky and Kurumkansky districts of the Republic of Buryatia. These districts are situated in the valley of the Barguzin River near Lake Baikal. Nineteen burial grounds for animal refuse located in their territory fail to meet veterinary and sanitary requirements. In June and July 2008, the loss of 65 head of cattle was registered in the districts. Eleven people were hospitalized, and eight of them were diagnosed as having anthrax. Current disposal practices in the districts create a real threat of penetration of polluted water into the Barguzin River and the spread of the disease downstream.

178. The demonstration will involve site inspections jointly with local veterinary and sanitation experts at all 19 animal refuse sites. Upgrade needs will be identified and costed as pre-feasibility studies. Funding will then be sought through national and donor sources for implementing the recommendations. Attention will also be given to training needs for local health and veterinary officials and inspectors, with inclusion of these issues in the capacity self-assessments (2.3) and training program (2.4). Improvements in carcass handling and disposal at all 19 burial grounds will be implemented by project year 4, with the goal of no subsequent anthrax outbreaks.

Output 3.3. Pilots for the mainstreaming of biodiversity and ecosystem health management objectives into tourism planning and practice.

179. Under this output biodiversity and ecosystem health management objectives will be mainstreamed into tourism planning and practice.

180. a) *Biodiversity-compatible tourism plans developed for all Baikal districts and adopted in both countries.* Russian plans will be designed specifically to inform decision-making. In the Russian portion of the Baikal Basin, the "Baikal Special Economic Zone of Tourism and Recreation" regulation and plan will serve as the entry point for mainstreaming activities under this output. Practical guidelines and principles appropriate to the Baikal context will be promulgated. This pilot will be designed to complement a very recently approved (late 2010) Russian Government investment program. PAs in Russia's Baikal Basin will be receiving large investment from the government for tourism development. This pilot will provide incremental assistance in shaping investments to maximize the mainstreaming of biodiversity and ecosystem health objectives and practices into tourism development. Demonstration projects will be identified together with Russian Government counterparts at project inception. Work on this during the PPG process was not possible as the government investments have been approved only in late 2010. Protected areas in the Baikal Basin who will receive this government investment are: (Baikalsky, Baikalo-Lensky and Barguzinsky) They will receive over \$13 million from the MNRE in 2011-2013 for tourism development. In addition a regional Baikal investment programme has been developed with a large tourism development component focused on Buryatia. Project resources will support the development of model public-private contracts for these PA to use that incorporate these clear principles and requirements for "eco-tourism" at the planning and operational stages of tourism enterprises. PA staff, tourism operators and tourism policy makers will be trained as part of the pilot.

181. Best practices from the Russian side will be shared with the Mongolian side as possible SAP implementation pilots for future funding.

182. b) *Pilot/model sport fishing program on low-impact, sensitive sport fishing tourism in the Baikal Basin.* The "normal" way of sport fishing in much of the world is to "catch and kill." To fish means to kill fish. This is problematic even with oceanic sport fisheries and especially so when it comes to maintaining healthy sustainable populations of sport fish in river systems like those in the Baikal Basin. Populations of the more desirable (and ecologically significant) larger fish are quickly reduced using "catch and kill" approaches. This has been the result in a significant portion of the Baikal Basin, where populations of taimen, lennok and grayling have plummeted, in some cases perhaps beyond the tipping point making natural recovery difficult and modifying the ecological balance of the river.

183. In the Mongolia's Baikal Basin, however, there is at least one ongoing successful experience with sustainable "catch and release" sport fishing, that brings fishing clients to remote stretches of river to catch and release the legendary taimen. The program has been supported by solid field science, which has studied the ecology of taimen for several years, using various radio, satellite, and acoustic tracking technologies, shedding light on the impact of "catch and release" fishing on numbers and movement of the fish populations up and down the river, spawning times, diet, and age structure⁶. The fishers themselves are involved in recording information on the fish they catch and release. Local communities also benefit and work is ongoing to form a more formal agreement between the fishing company and the local communities.

184. Peer-to-peer training will be central to this pilot. At least one successful "catch and release" operation will be used as a training base for tourism policy makers, fisheries enforcement officers, and sport fishing guides and operators from both countries. Organized groups of sport fishing guides will be trained in the basic tenets of low-impact, catch and release fishing using either fly fishing or lure fishing techniques. Proper catch and release fish handling techniques will be demonstrated. And work under this pilot will establish an association of catch and release fishing guides working in the Baikal Basin to facilitate policy engagement and ongoing capacity building and support programs.

⁶ Jensen, O.P., et. al. 2009. Evaluating recreational fisheries for an endangered species: a case study of taimen, *Hucho taimen*, in Mongolia. *Canadian Journal of Fisheries Aquatic Sciences*. **66**: 1707–1718.

Output 3.4. Baikal Information Center, with NGO Forum and Business and Industry Partnerships.

185. Work under this output will enhance data and information sharing through the establishment of a web-based BIC, incorporating available environment status data. Initially, the BIC will be housed within the PMU and will have the form of an interactive web-site. The BIC will promote data collection, monitoring, analysis, harmonization and public communication. It will build upon work done to create the harmonized Baikal Basin Water Quality Monitoring Program under Outcome 2, Output 2.4. This activity will make harmonized data and related environmental reports available on the Internet -- accessible and transparent for public -- as a critical element to facilitating good transboundary environmental governance. Public awareness surveys will also be conducted, including also surveys of tourists to the region.

186. The BIC will prepare the biennial report on the state of the environment of the Baikal Basin. Public education is key element for enhanced public awareness of the conditions, challenges and threats to the environment of the Baikal Basin. Adequate education is relevant to all concerned stakeholders at all levels in the civil society. This activity will aim at ensuring and improving the availability of regular comprehensive reports providing accurate, up-to-date and accessible information about environmental conditions of the Baikal Basin and thereby enhancing the consciousness of the civil society.

187. The report will be prepared in close collaboration with main stakeholders and on the basis of scientific assessment. The activity will also contribute to the preparation of other relevant information/education materials. All materials will be accessible through the BIC and will be widely distributed to the public.

188. Work under this output will elaborate a new concise public participation strategy (PPS) to better support the requirements of the existing bilateral agreements on the Baikal Basin. Work will focus on strengthening the involvement of industry, business and civil society in the Baikal Basin. A Baikal Industry Roundtable will be established and carried out by the Baikal Information Centre, providing a regular forum for feedback from the business sector and used to initiate public/private partnerships for water quality and biodiversity protection measures. With sponsorship from UNDP/Coca Cola Regional Water Project "Every Drop Matter" and the Russian Ministry of Education, "Baikal Educational Boxes" will be produced, each of which includes an array of fun educational activities and information for youth, covering important themes on Lake Baikal ecology. 1,000 boxes will be produced and distributed to schools in the region.

189. A Baikal NGO Forum will be established through the BIC, providing a link to local NGOs and a mechanism to generate NGO support and advice on TDA/SAP development, plus participation in SAP implementation. The project Team will develop a set of high profile activities, including shoreline cleanup campaigns for Lake Baikal, Lake Hovsgol and the Selenga River, with NGO and Industry support, framed around an annual week of events during peak tourism season (July/August).

190. The creation of a transboundary "Friends of Baikal Basin" NGO network will be the first step towards enhanced involvement of the civil society in the transboundary collaborative process. The network will form structured, well-defined and efficient NGO partnerships to allow for adequate and coordinated representation of civil society in the context of the transboundary and national SAP implementation. Virtual web-based tools for creating and maintaining partnerships will include a website and an email list-serve. It will encourage the membership of community-based organizations (CBOs) and NGOs (registered and non-registered). The virtual partnership will be working in Russian, Mongolian, and English, with country-specific content managed in each country respectively.

191. This Friends of Baikal Basin Network will also be engaged under a UNDP/Coca Cola funded, practical, hands-on initiative to benefit Baikal and to see the benefits called "Every Drop Matters." The Every Drop Matters Project in Russia is part of the regional UNDP-Coke water partnership and is one of the five pilot projects planned in five countries (Russia, Romania, Turkey, Kazakhstan, Croatia). One of

the purposes of the initiative is the protection of drinking water resources and sustainable economic development of local communities and their water resources, as well as awareness-raising on water issues.

192. Lake Baikal is a global symbol of clean water resources, its strategic location, its potential for tourism development as well as its status as a natural heritage site will enable this work to raise awareness and knowledge about sustainable water use and waste management among the local population and tourists through hands-on, service oriented actions such as cleaning up litter clogged riparian zones. Project messages will encourage the preservation and sustainable use of Lake Baikal's natural resources by local communities and will promote educational work targeted at local communities and wider local audience, including tourists, mass media, and business. Because of the high profile of Lake Baikal and its global significance it can become a symbol for a national water conservation campaign beyond the local and regional context. Therefore, the project will also support a nation-wide public awareness programme targeting specific groups for results-based awareness raising initiatives.

2.4 Project Indicators, Risks and Assumptions

Risk	Level	Mitigation
Difficulties in revising national legislation and normative acts to comply with agreements made as part of the integrated basin management development process.	M	The Government of Russia has already established an inter-agency governmental commission on Lake Baikal, which will help mitigate this risk for Russia. Mongolia has in place a National Committee to manage its National Program for Water. Under Component II, the project dedicates substantial resources to capacitating both committees to ensure effective policy and regulation development, begin implementation, monitoring and enforcement.
Competing economic interests can oppose the implementation of basin management plans and mainstreaming technologies if they are seen to add costs to industrial activities such as minerals extraction.	M	The project will include pilots on sustainable mining, Mining and eco-tourism that demonstrate alternative, cost-effective techniques for sustainable economic development. The project will dedicate resources to setting a replication plan for the results of the pilot activities, through the Baikal Center for Technology Transfer and multiple forums with industry representatives
<u>Climate change risk:</u> The continuing rise in global temperatures due to elevated global carbon levels may threaten the Baikal and Hövsgöl ecosystems through warming of water temperatures and reduced permafrost, with consequent impairment to the viability of indigenous aquatic species and increased opportunities for incursions of alien species	M	Climate change impacts are aggravated by habitat degradation threats and pressures caused by humans. Under the Component's III demonstration activities, the project is concentrating on reducing anthropogenic threats, habitat fragmentation and degradation. It is thus removing or reducing external stressors on the ecosystems and increasing its resilience to pending climate change.

2.5 Incremental reasoning and expected global, national and local benefits

193. In the baseline situation, Russia and Mongolia will continue largely with national efforts to improve environmental management on either side of the border within the Baikal Basin. To be sure, ongoing bilateral efforts on the part of both countries to cooperate on Baikal and Selenga River issues are significant and noteworthy. However, they are inadequate to the task. Imminent and increasing threats to

ecosystem health across the Basin require an increased level of commitment and energy be focussed on the transboundary basin as a whole.

194. GEF involvement will help raise the profile of the transboundary elements of the project and bring new tools and perspectives to the table. In the absence of continued GEF support, the technical and political inter-sectoral networks established may not be formalized and their potential as instruments to direct reforms and investments within integrated water resources management approaches in the project area may not be realized. Despite the considerable baseline investments these will then get implemented from a narrow sectoral perspective and without a regional, transboundary focus, thereby limiting opportunities for knowledge sharing, cross-fertilization of best practices and technologies, and IWRM approaches. In addition, without the GEF contribution, there is likely to be insufficient attention placed on the environmental risks arising from the rapid expansion of the mining industry in both countries, as well as a rapidly expanding tourism sector. In both cases, cost-effective mitigation strategies are needed, that provide necessary biodiversity safeguards.

195. Without the GEF support and global recognition it entails, the risks of unplanned, ill-considered growth in this unique and globally significant basin will be considerably higher. Finally, the project is being proposed during a global economic downturn, which is putting an economic strain on both partner countries and creating pressures to expand natural resource exploitation. The project can help to ensure that long term environmental protection measures are taken into account when decision-makers take action to lessen short term economic pressures.

196. The GEF alternative provides sustained attention through a revamped Joint Commission that will help the two countries to jointly monitor ecosystem health and jointly establish an integrated ecosystem management approach for the Baikal / Selenga Basin. A GEF-supported co-funded project is key to achieving this goal. Without external support from GEF, it is unlikely that Mongolia and the Russian federation will be able to reach agreement on practical measures for sustainable, ecosystem-based IWRM.

197. The sources of the pollution of the Baikal watershed are transboundary in nature. Since 1992 the GEF has demonstrated world-wide the value of establishing transboundary actions addressing threats to water resources shared by multiple countries. The development and implementation process for integrated basin management planning helps countries to recognize their mutual self-interest, and agree on joint environmental protection measures.

Expected Global Benefits

198. As an IW and Biodiversity Project under GEF-4's program, this project will generate global benefits under both focal areas. Under IW, the project will enable stakeholders from Russia and Mongolia to improve collective management of the transboundary Baikal Basin and to implement strategic actions and policy and institutional reforms and investments contributing to sustainable use and the maintenance of ecosystem services. More specifically:

- A Strategic Action Programme (SAP) for the transboundary Baikal Basin, agreed at the ministerial level, adopted by both countries. In the SAP, Russian and Mongolian stakeholders will for the first time enunciate a long-term vision for a resilient Baikal Basin ecosystem.
- The implementation of the agreed Strategic Action Programme will incorporate transboundary IWRM principles (including environment and groundwater) and policy, legal and institutional reforms.
- Strengthened transboundary institutional capacity for joint management of the Baikal Basin under existing bi-lateral agreements.
- Pollution levels in designated hot-spot monitoring areas will be reduced by 20%.

199. Under Biodiversity, the project will support country efforts to integrate biodiversity considerations into productive sectors that fall outside the environment sector. In particular, the project is designed to strengthen the policy and regulatory framework necessary for mainstreaming to take place in the Baikal Basin with respect to target sectors.

- The project will enhance protection of the unique Baikal Basin ecosystem, which includes a UNESCO World Heritage site and at least one RAMSAR site.
- At least ten policies and regulations governing target sectoral activities (mining, tourism, sport fishing) in both Russia and Mongolia will incorporate biodiversity management and conservation objectives.
- Enhanced protection will be established in at least 3 sub-basins throughout the greater transboundary basin totaling at least 500,000 ha of freshwater lake and river ecosystems.
- The project will achieve improved management and conservation of globally significant biodiversity, threatened and near-threatened species outside protected areas, in designated Essential Fish Habitats, with populations of target fish species (*Taimen*, *Lenok* and *Grayling*) stable or increasing.
- The project will suppress threats to biodiversity and water quality, originating from unsustainable mining and tourism development. Thus, the project can become a model of a truly integrated TDA/SAP, which takes into account surface and groundwater aspects on one hand, while removing stresses to threatened aquatic flora and fauna on the other.

Expected National & Local Benefits

200. Of course any improvement in environmental conditions is a national and local benefit. The preservation of the ecosystem's integrity will preserve the system for alternative livelihoods (including development of the tourism industry), which is an important upcoming economic sector within the Basin. Under this project national and local benefits will include reduced pollution of target areas, improved watershed management, and strengthened transboundary management of the Baikal Basin that will contribute to sustainable development in both countries. In addition, the project's efforts to mainstream biodiversity objectives into tourism practices will only make tourism more competitive in the international marketplace, as this is something tourists prefer. Local populations will benefit economically from the development of sustainable tourism opportunities that will bring additional income. In addition, the project's assistance in restoring Lenok, Grayling and Taimen populations will benefit local populations who fish for these species. Local tourism organizations will benefit from the potential revitalization of sport fishing in the tributaries of the Selenga River.

201. National and local organizations will benefit from training programs on integrated water resources management. Local inhabitants will have opportunities for improved health through the reduction of exposure to water-borne toxic substances and diseases such as anthrax. Local benefits will include improved awareness of environmental issues among targeted groups of local stakeholders.

2.6 Country Ownership: Country Eligibility and Country Drivenness

202. Both countries: Russian Federation and Mongolia – are eligible under paragraph 9 (b) of the GEF Instrument. Both countries have signed and ratified the Convention on Biological Diversity (CBD, and the Convention on International Trade in Endangered Species (CITES). Both Conventions are highly relevant to the management and conservation of bioresources in the Baikal / Selenga Basin. Both countries have committed to the implementation of the principles of the FAO Code of Conduct for Responsible Fisheries.

203. The proposed project will build on the growing national and political commitment shown by the two countries to engage in effective bilateral environmental cooperation. The two countries have a proven record of bilateral cooperation on Baikal and Selenga River issues dating back at least to 1974, when the Selenga River agreement was signed. At the national level, evidence of country commitment is fairly abundant and has been covered in previous sections of this proposal where laws, policies, and institutions are described.

204. In Russia, the scientific community's work in defining and solving Baikal environmental problems has gone on for more than half a century. There continues to be a strong convergence of environmental viewpoints among many in the business, general public and government concerning avoiding actions that would significantly imperil the Baikal ecosystem. This interest and country commitment at the highest levels manifest itself especially in 2007 during the successful effort to compel the government and Rosneft to reroute an oil pipeline so it did not pass by Lake Baikal or enter into the Basin itself.

205. GEF support will serve as the foundation for concerted national and regional actions to protect the unique biodiversity of the Baikal / Selenga Basin and ensure that local communities in the region will still be able to rely on the region's water resources to support their livelihoods, especially through tourism and fisheries. The countries' respective national biodiversity conservation and sustainable use action plans all highlight the Baikal / Selenga region as a priority.

Project Link to the CP/GCF/RCF and UNDAF

Country:	UNDAF Outcome(s)/Indicator(s):	Expected Outcome(s) /Indicator (s):	Expected Output(s)/Indicator(s):
Russia	NA	Improved environmental sustainability of development /environmental dimension in development policy.	Conserved ecosystems are considered as important resource for sustainable development.
Mongolia	.NA	CP Outcome 3.1: Improved environmental governance is practiced	The impact of the depletion of non-renewable Resources and environmental degradation assessed and corrective actions reflected and addressed in national and sectoral plans.

2.7 Relevance to UNDP mandate.

206. Within UNDP's effective water governance area over 80 program countries have water projects, with a total portfolio value of over \$300 million. In terms of international advocacy, UNDP has championed the global water crisis and stressed the importance of water for life and water for livelihoods in its 2006 Human Development Report titled "Beyond scarcity: Power, poverty and the global water crisis". In accordance with the GEF Agencies Comparative Advantages paper, UNDP will build upon its comparative advantages in capacity building and technical assistance to support beneficiary governments in project development and implementation, specifically in the areas of integrated policy development, institutional strengthening and community participation.

207. 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; (iii) UNDP's experience in implementing 32 GEF – funded projects in biodiversity conservation in the region through its network of 26 Country Offices. Globally, 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 programs 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; and (v) the UNDP Country Program 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.

2.8 Sustainability

208. The potential for sustainability of project-inspired approaches is high for the following reasons:

209. Environmental: The project's whole approach is to enable the Russian Federation and Mongolia to develop and apply a bioresources management and conservation approach that focuses on ecosystem health and ecosystem resilience. The unique resources of the Baikal region cannot be protected using technological solutions alone: natural processes must be better understood in order to achieve environmental sustainability. A resilient ecosystem is best able to withstand and absorb climate instability.

210. Social/institutional: The project is supporting the enhancement of an existing cross-border cooperation framework: the Joint Working Group on Transboundary Waters into a Joint Commission for the Baikal / Selenga Basin. This has implications for sustainability given that both countries have committed to closer cooperation and further regional environmental improvements.

211. Financial: a) Significant national investments have been and are being made in each country. The countries have committed themselves to providing ongoing financial support to the Joint Commission as can be seen in the co-financing letters attached to this document. Implementation of plans and activities agreed by both countries is financed by the two countries respectively. The project is designed to help the Joint Commission implement agreed shared actions through the Baikal Strategic Action Programme. The unique biodiversity of the Baikal region, and its potential as an economic boon to the region through tourism, demand that serious investments will continue to be made after project completion.

2.9 Replicability

212. The proposed project has the potential to provide lessons that can be adapted to other regions of the world, particularly those aiming to adopt ecosystem-based management approaches to bioresources conservation and management and those seeking to establish a country-owned and driven regional framework convention and governance process. The project will document these lessons in a form that facilitates their replicability, and will actively participate in GEF and other activities that seek to promote replication and share experiences, such as IW:LEARN and the Biennial GEF IW Conferences. The anticipated cost of such replication-related activities is approximately US\$44,000.

PART III: Management Arrangements

213. The project will be implemented by UNDP. The UN Office for Project Services (UNOPS) serves as Implementing Partner for the project. In addition to budget management and expenditures control, UNOPS responsibilities include hiring and administration of international and local personnel, procurement of goods and service, travel arrangements and other miscellaneous support as required.

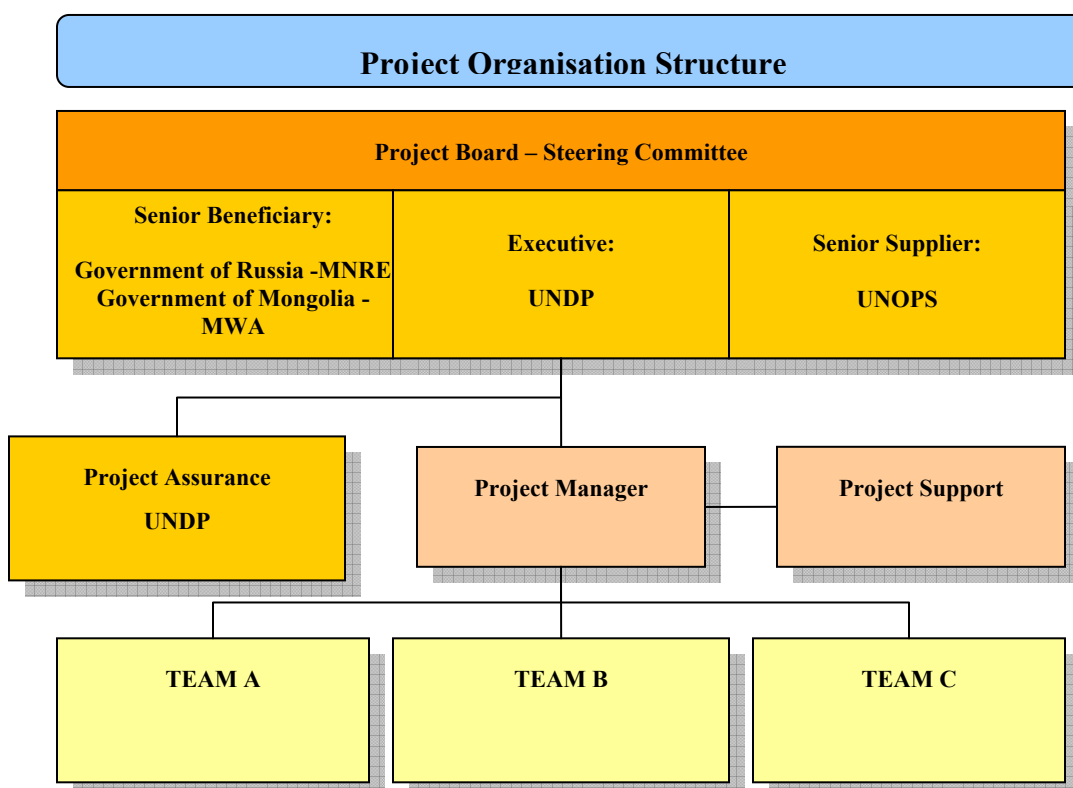
214. A Project Management Unit (PMU) will provide the day-to-day management and coordination function for project activities. A Project Manager (PM) will oversee the PMU. The PM will have strong project management experience, multidisciplinary skills, fluency in English and Russian (Mongolian would be a benefit), and will preferably have experience in the region and a background in natural

resources management and environmental management. The PM will report to UNOPS, to the UNDP Lead Office and to the UNDP-GEF Regional Technical Advisor located in Bratislava.

215. The core of the PMU will be located in the Republic of Buryatia in Ulan Ude, Russian Federation, and staffed by a Project Manager (PM), a Aquatic Bioresources Expert (ABE), a Finance Officer (FO), and one Project Administration and Logistics Assistant (PAL) providing support to the PM. All PMU staff will be recruited at the national level. The Government of the Russian Federation, Government of Mongolia, and GEF will co-fund the PMU. The Russian Federation will provide office space and furniture necessary for the functioning of the PMU. The GEF will fund PMU staff costs and minimal office equipment and operating costs. Two technical Country Directors will be part of the PMU, one for Mongolian (TCD-M), outposted in Ulaanbaatar, in an office provided by the Government of Mongolia (MNET or Water Authority) and one in Moscow in the Center of International Projects (CIP).

216. The PMU will need to be able to exercise a considerable degree of financial independence for it to operate effectively, particularly with respect to local contracting and the executing agency will design the necessary administrative arrangements to support this. National and international consultants, when required, will be assisting the PMU.

217. The project will be guided by a Project Board/Steering Committee (SC) comprised of the representatives of both countries, UNDP, UNOPS and other donors and partners. On the Russian side, the SC will include representation from the Baikalsk Vodresurs, MNRE, Ministry of Sport, Tourism and Youth Policy and representatives of Republic of Buryatia, Irkutsk Oblast and Zabaikalsky Krai. On the Mongolian side, the SC will include representation from the MNET, the Water Authority of Mongolia, Ministry of Mineral Resources and Energy, and one Aimag. The SC will provide guidance based upon project progress assessments and related recommendations from the PMU. The SC will review and approve annual project reviews and workplans, technical documents, budgets and financial reports. The SC will provide general strategic and implementation guidance to the PMU. It will meet annually, and make decisions by consensus. The specific rules and procedures of the SC will be decided upon at the project inception meeting.



Project Board/Steering Committee is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board 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. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

The Board contains three distinct roles, including:

- 1) **An Executive:** individual representing the project ownership to chair the group.
 - *e.g. Representative of the Government Cooperating Agency or UNDP*
- 2) **Senior Supplier:** individual or group 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.
 - *e.g. Representative of the Implementing Partner and/or UNDP*
- 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.
 - *e.g. Representative of the Government or Civil Society.*
- 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.
 - *e.g. A UNDP Staff member typically holds the Project Assurance role.*

218. The success of the project implementation is dependent upon strong project guidance, coordination and advocacy from the SC. The PMU which will be responsible for arranging SC meetings, providing materials to members prior to the meeting, and delineating a clear set of meeting objectives and sub-objectives to be met.

219. **Project Manager:** The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. 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.

220. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should 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 will also accord proper acknowledgment to GEF.

PART IV: Monitoring and Evaluation Plan and Budget.

221. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures by the project team and the UNDP-GEF Regional Coordinating Unit (RCU) in Bratislava. The Strategic Results Framework Matrix provides impact and outcome indicators for project implementation along with their corresponding means of verification. The M&E plan includes: inception workshop and report, project implementation reviews, quarterly operational reports, a mid-term and final evaluation, etc. Annex 6 outlines indicative cost estimates related to M&E activities. The project's

Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Meeting following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

Project Inception Phase

222. A Project Inception Workshop will be held within the first 3 months of project start with the full project team, relevant government counterparts, co-financing partners, the UNDP-GEF RCU, as well as UNDP-CO and GEF (HQs) as appropriate. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan and budget on the basis of the project's Strategic Results Framework. This will include reviewing the Strategic Results Framework (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project. Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF *expanded team* which will support the project during its implementation, namely UNOPS and responsible RCU staff; (ii) detail the roles, support services and complementary responsibilities of UNOPS and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks. Discuss financial reporting procedures and obligations, and arrangements for annual audit. Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

And finally, the IW will invite and include other partners to facilitate coordination of complementary programs and projects in the Baikal / Selenga Basin. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed in order to clarify for all, each party's responsibilities during the project's implementation phase. Rules of procedure for SC meetings will also be discussed and agreed.

223. An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Monitoring responsibilities and events

224. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Steering Committee Meetings, or other relevant advisory and/or coordination mechanisms and (ii) project related Monitoring and Evaluation activities.

225. Day to day monitoring of implementation progress will be the responsibility of the Project Manager based on the project's Annual Work Plan and its indicators. The Project Team will inform UNDP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion. The Project Manager will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from the RCU. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be

used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

226. Periodic monitoring of implementation progress will be undertaken by the RCU through quarterly telephone meetings with the project local implementation group, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities. The RCU will conduct yearly visits to projects that have field sites, or more often based on an agreed upon schedule to be detailed in the project's Inception Report/Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the RCU and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

227. Annual Monitoring will be ensured by means of the project Steering Committee meetings⁷ being the highest policy-level meeting of the parties directly involved in the implementation of a project. SC meetings will be held at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project implementation team will prepare a harmonized Annual Project Report and Project Implementation Review (APR/PIR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the SC for review and comments. The APR/PIR will be used as one of the basic documents for discussions in the SC meeting. The project proponent will present the APR to the SC, highlighting policy issues and recommendations for the decision of the SC members. The project proponent also informs the participants of any agreement reached by stakeholders during the APR/PIR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

Project Monitoring Reporting

228. The Project Manager in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process.

229. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year Work Plan divided in quarterly time frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the RCU or consultants, as well as time frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the RCU will review the document.

⁷ A SCM mechanism as such is similar to the Tripartite Review (TPR) formally required for the UNDP/GEF projects, and differs from the latter only in the composition of the review panel, which, in case of the SC, is broader than that of the TPR.

230. The APR/PIR is an annual monitoring process mandated by the GEF⁸. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. It also forms a part of UNDP's central oversight, monitoring and project management, as well as represents a key issue for the discussion at the Steering Committee meetings. Once the project has been under implementation for a year, an APR/PIR must be completed by the RCU together with the project implementation team. The APR/PIR can be prepared any time during the year (July-June), prior to the SC meeting. The APR/PIR should then be discussed at the SC meeting so that the result will be an APR/PIR that has been agreed upon by the project, the executing agency, and the key stakeholders. The individual APR/PIRs are collected, reviewed and analysed by the RC prior to sending them to the focal area clusters at the UNDP/GEF headquarters.

231. Quarterly Progress reports: Short reports outlining main updates in project progress will be provided quarterly to the RCU by the project team based upon a standard format to be provided by UNDP-GEF.

232. As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises 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.

233. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

Independent Evaluation

234. The project will be subjected to at least two independent external evaluations as follows:

235. An independent Mid-Term Review will be undertaken at the mid of the second year of implementation. The Mid-Term Review will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term review will be prepared by the PMU based on guidance from the RCU and UNDP-GEF.

236. An independent Final Evaluation will take place three months prior to the terminal Steering Committee meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the PMCU based on guidance from the RCU and UNDP-GEF.

Audit Clause

237. The project will be audited in accordance with UNDP Financial Regulations and Audit policies. UNOPS audits in accordance with the UNOPS Financial Regulations and Rules and other directives applicable to UNOPS. UNDP and UNOPS recognize that each is subject to external and

⁸ The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR (standard UNDP requirement) and PIR (GEF format), UNDP/GEF has prepared a harmonized format - an APR/PIR

internal audit exclusively by the United Nations Board of Nations and their internal audit services respectively.

Table 3: Project Monitoring and Evaluation Plan and Budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project staff time</i>	Time frame
Inception Workshop & associated arrangements	<ul style="list-style-type: none"> Project Manager UNDP CO UNDP GEF 	Indicative cost: 15,000	Within first two months of project start up
Inception Report	<ul style="list-style-type: none"> Project Team UNDP CO Consultancy support if needed 	Indicative cost 5,000 (stakeholder consultations, consultancy translation)	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	<ul style="list-style-type: none"> Project Manager will oversee the hiring for specific studies and institutions, delegate responsibilities to relevant team members, and Ensure hiring outside experts if deemed necessary 	To be finalized in Inception Phase and Workshop. Indicative cost 12,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	<ul style="list-style-type: none"> 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. Indicative cost 12,000	Annually prior to APR/PIR and to the definition of annual work plans
APR/PIR	<ul style="list-style-type: none"> Project Team UNDP-CO UNDP-GEF 	Indicative cost: 0	Annually
Steering Committee Meetings and relevant meeting proceedings (minutes)	<ul style="list-style-type: none"> Project Manager UNDP CO 	Indicative cost: 46,000 (travel costs for relevant project stakeholders)	Following Project IW and subsequently at least once a year
Quarterly status reports	<ul style="list-style-type: none"> Project team 	Indicative cost: 0	To be determined by Project team and UNDP CO
Technical reports	<ul style="list-style-type: none"> Project team Hired consultants as needed 	Indicative cost: 30,000	To be determined by Project Team and UNDP-CO
Project Publications (e.g. technical manuals, field guides)	<ul style="list-style-type: none"> Project team Hired consultants as needed 	Indicative cost: 40,000	To be determined by Project Team and UNDP-CO
Mid-term External Review	<ul style="list-style-type: none"> Project team UNDP- CO UNDP-GEF RCU External Consultants (i.e. evaluation team) 	Indicative cost: 18,000	At the mid-point of project implementation.
Final External Evaluation	<ul style="list-style-type: none"> Project team, UNDP-CO UNDP-GEF RCU External Consultants (i.e. evaluation team) 	Indicative cost: 42,000	At the end of project implementation
Terminal Report	<ul style="list-style-type: none"> Project team 	Indicative cost: 5,000	At least one month

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project staff time</i>	Time frame
	<ul style="list-style-type: none"> UNDP-CO External Consultant 		before the end of the project
Lessons learned	<ul style="list-style-type: none"> Project team UNDP-GEF RCU (suggested formats for documenting best practices, etc) 	Indicative cost: 14,000	Yearly
Audit	<ul style="list-style-type: none"> UNDP-CO Project team 	Indicative cost: 18,000 (average \$6000 per year)	Yearly
Visits to field sites (UNDP staff travel to be charged to IA fees)	<ul style="list-style-type: none"> UNDP Country Office UNDP-GEF RCU (as appropriate) Government representatives 	Indicative cost: 16,000 (average one visit per year)	Yearly
TOTAL INDICATIVE COST Excluding project team staff time and UNDP staff and travel expenses		US\$ 273,000	

LEARNING AND KNOWLEDGE SHARING

238. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

239. The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP/GEF, IW:LEARN etc. have established a number of networks, such as IWRM, lake and river basin management, Integrated Ecosystem Management, eco-tourism, co-management, etc, that will largely function on the basis of an electronic platform. Additionally the project will contribute to IW:LEARN experience note preparation, website and participation of the Project Manager and (2) country representatives in IW Conferences. Approximately 1% of the project budget will be spent on IW:LEARN activities.

240. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned.

241. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identifying and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities

PART V: Legal Context

242. This project forms part of an overall programmatic framework under which several separate associated country level activities will be implemented. When assistance and support services are provided from this Project to the associated country level activities, this document shall be the "Project Document" instrument referred to in the respective signed SBAs for the Russian Federation and Mongolia.

243. This project will be implemented by UNOPS ("Implementing Partner") in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness,

integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

244. The responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. The Implementing Partner 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 Partner's security, and the full implementation of the security plan. 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.

245. The Implementing Partner 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.

SECTION II: STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT

PART I: Incremental Reasoning

Global Environmental Benefits

246. It is difficult to exaggerate the global significance and uniqueness of Lake Baikal itself and by extension the greater Baikal Basin in which the Lake exists. Baikal is the world's oldest (>25 million years), deepest lake (1,642 m). With 20% of the Earth's unfrozen fresh water, it is the world's most voluminous lake (23,600 km³), containing more water than all five of North America's Great Lakes combined. The diversity of flora and fauna found in Lake Baikal is higher than any other freshwater lake in the world.

247. An estimated 40% of the lake species are still undescribed. Eighty-five percent of the known 2,565 described animal species (Timoshkin 1995) and 40% of the 1,000 plant species are endemic (Bondarenko et al. 2006a). Mongolia's Lake Hovsgol sits atop the Baikal Basin and is in itself one of the world's largest lakes. Linking the two is an extraordinarily beautiful and unique network of rivers and streams harboring the world's largest species of trout (*Hucho taimen*) and many other aquatic and terrestrial species of flora and fauna. The Baikal Basin is one of the most significant freshwater basins in the world.

Incremental Reasoning

248. In the baseline situation, Russia and Mongolia will continue largely with national efforts to improve environmental management on either side of the border within the Baikal Basin. Ongoing bilateral efforts on the part of both countries to cooperate on Baikal and Selenga River issues are significant and noteworthy. However, they are inadequate to the task. Imminent and increasing threats to ecosystem health across the Basin require an increased level of commitment and energy be focussed on the transboundary basin as a whole.

249. GEF involvement will help raise the profile of the transboundary elements of the project and bring new tools and perspectives to the table. In the absence of continued GEF support, the technical and political inter-sectoral networks established may not be formalized and their potential as instruments to direct reforms and investments within integrated water resources management approaches in the project area may not be realized. Despite the considerable baseline investments these will then get implemented from a narrow sectoral perspective and without a regional, transboundary focus, thereby limiting opportunities for knowledge sharing, cross-fertilization of best practices and technologies, and IWRM approaches. In addition, without the GEF contribution, there is likely to be insufficient attention placed

on the environmental risks arising from the rapid expansion of the mining industry in both countries, as well as a rapidly expanding tourism sector. In both cases, cost-effective mitigation strategies are needed, that provide necessary biodiversity safeguards.

250. Without the GEF support and global recognition it entails, the risks of unplanned, ill-considered growth in this unique and globally significant basin will be considerably higher. Finally, the project is being proposed during a global economic downturn, which is putting an economic strain on both partner countries and creating pressures to expand natural resource exploitation. The project can help to ensure that long term environmental protection measures are taken into account when decision-makers take action to lesson short term economic pressures.

251. The objective of the GEF alternative To spearhead integrated natural resource management of Baikal Lake Basin and Hövsgöllake ensuring ecosystem resilience, reduced water quality threats in the context of sustainable economic development.

252. The project's three components are designed to achieve this objective. Component 1 will elaborate a strategic policy and planning framework. The main aims in this component are to develop a detailed TDA of the Baikal/Selenga Basin, that is then used to generate a SAP for shared actions by the Russian Federation and Mongolia. This TDA/SAP effort will build upon lessons learned by more than 30 GEF TDA/SAP projects, with special attention to TDA/SAP projects such as the Danube and Dnipro Rivers, Lake Ohrid, and the Caspian Sea. Building from other TDA/SAP efforts, the Baikal Basin effort will emphasize mainstreaming biodiversity management objectives into economic sector policies and practices, to facilitate the maintenance of essential aquatic ecosystem functions that sustain human welfare. This TDA/SAP will provide a holistic review and strategy development for the transboundary basin-wide ecosystem.

253. Component 2 will strengthen institutional abilities to apply IWRM in the Baikal Basin. Capacity building will occur at the transboundary, national and local levels in support of Russian and Mongolian efforts to establish effective structures and mechanisms for protecting water resources and biodiversity through integrated basin management. A Joint Commission for the Baikal Rift Basin will be established and capacitated, building upon the existing Joint Task Force on the Selenga River. Inter-ministerial working groups will be set at national (Mongolia) and republic and aimag levels (Russia and Mongolia) tasked with managing the decision-making processes for approval and implementation of the SAP and as well as model sub-basin watershed management plans. Project resources will enable stakeholders in both countries to conduct capacity self-assessments in order to identify highest priority training and management support at the regional and basin level. GEF resources will enable the introduction of new tools and techniques to be introduced for IWRM to meet the new challenges facing Baikal and the greater Baikal Basin. These tools include software models that employ cutting edge scientific knowledge to interpret potential climate change impacts at multiple scales. Other areas likely in need of capacity building, include: (a) integrated basin planning and management; (b) GIS & spatial planning and mapping threats to ground and surface waters; (c) EIAs and industrial site inspections; (d) avoidance and containment of invasive species; (e) environmental monitoring system design and management (inter-calibration of water quality/aquatic system laboratories and training in bioassay techniques); (f) enforcement of water quality and biodiversity regulations. Country protocols for the Baikal Water Quality Monitoring Program will be harmonized and set in use using upgraded monitoring stations.

254. Component 3: Mainstreaming biodiversity and ecosystem health management objectives. Pilot projects will be launched in partnership with local industries to demonstrate techniques for improving water quality and mainstreaming biodiversity management objectives into sustainable economic development. Each pilot will include a robust replication element, with peer-to-peer training conducted at the pilot site for relevant policy level, enforcement level, and operator level stakeholders

255. This will include pilots carried at copper and/or gold mining sites to demonstrate avoidance and mitigation of biodiversity risks, primarily focusing on tail pond management and avoiding soil and groundwater contamination. This will also include safe and effective disposal of livestock carcasses to cease periodic anthrax outbreaks. Further pilots will deal with "greening" the tourism and sportfishing sector, designed to inform the decision makers within the Baikal Special Zone of Tourism on

biodiversity-compatible tourism opportunities (ecotourism) and to use model tourism/sport fishing enterprises as peer-to-peer training opportunities. In parallel to demonstration activities, the project will support local environmental inspectors with better enforcement capacities, enabling them to better control illegal fishing and mining. Techniques for controlling the introduction of invasive species will be tested, alongside with support to strengthen native fish populations. In order to trigger replication and ensure the sustainability of results, the project will elaborate an online Baikal Information Center designed to be an interactive online resource center with an NGO Forum and Business and Industry Fora, launched by a series of fora for industry, and local NGOs. And finally, the TDA/SAP prepared under Component 1 will morph into a bi-annual “State of the Baikal Basin Environment” report under this component.

256. The sources of the pollution of the Baikal watershed are transboundary in nature. Since 1992 the GEF has demonstrated world-wide the value of establishing transboundary actions addressing threats to water resources shared by multiple countries. The development and implementation process for integrated basin management planning helps countries to recognize their mutual self-interest, and agree on joint environmental protection measures.

Expected Global Benefits

257. As an IW and Biodiversity Project under GEF-4’s program, this project will generate global benefits under both focal areas. Under IW, the project will enable stakeholders from Russia and Mongolia to improve collective management of the transboundary Baikal Basin and to implement strategic actions and policy and institutional reforms and investments contributing to sustainable use and the maintenance of ecosystem services. More specifically:

- A Strategic Action Programme (SAP) for the transboundary Baikal Basin, agreed at the ministerial level, adopted by both countries. In the SAP, Russian and Mongolian stakeholders will for the first time enunciate a long-term vision for a resilient Baikal Basin ecosystem.
- The implementation of the agreed Strategic Action Programme will incorporate transboundary IWRM principles (including environment and groundwater) and policy, legal and institutional reforms.
- Strengthened transboundary institutional capacity for joint management of the Baikal Basin under existing bi-lateral agreements.
- Pollution levels in designated hot-spot monitoring areas will be reduced by 20%.

258. Under Biodiversity, the project will support country efforts to integrate biodiversity considerations into productive sectors that fall outside the environment sector. In particular, the project is designed to strengthen the policy and regulatory framework necessary for mainstreaming to take place in the Baikal Basin with respect to target sectors.

- The project will enhance protection of the unique Baikal Basin ecosystem, which includes a UNESCO World Heritage site and at least one RAMSAR site.
- At least ten policies and regulations governing target sectoral activities (mining, tourism, sport fishing) in both Russia and Mongolia will incorporate biodiversity management and conservation objectives.
- Enhanced protection will be established in at least 2 sub-basins throughout the greater transboundary basin totaling at least 500,000 ha of freshwater lake and river ecosystems.
- The project will achieve improved management and conservation of globally significant biodiversity, threatened and near-threatened species outside protected areas, in designated Essential Fish Habitats, with populations of target fish species (*Taimen*, *Lenok* and *Grayling*) stable or increasing.
- The project will suppress threats to biodiversity and water quality, originating from unsustainable mining and tourism development. Thus, the project can become a model of a truly integrated

TDA/SAP, which takes into account surface and groundwater aspects on one hand, while removing stresses to threatened aquatic flora and fauna on the other.

Co-financing

259. Stakeholders have identified and secured parallel, cash and in-kind co-financing amounting to 49,288,169 from a range of sources. This is detailed in Table 4 below. See Part VII of this document for a full co-financing plan per outcome.

Table 4: Sources of Co-funding

<i>Name of co-financier (source)</i>	<i>Type</i>	<i>Amount (\$)</i>
MoNET - Mongolia	In-kind	500,000
Ministry of Natural Resources Buryatia	In-kind/Cash	13,118,459
Roshydromet - Buryatia	In-kind/cash	2,440,411
Service for consumer rights - Buryatia	In-kind/cash	5,602,912
Baikal Institute for Nature Use	In-kind/cash	5,496,774
Buryatia State University	In-kind/cash	2,294,839
Dept. Veterinary Control	In-kind/cash	548,161
Federal Fishery Agency -Baikal	In-kind/cash	623,226
Coca Cola	Cash	300,000
Baikal Lake Water Resources Agency	In-kind/Cash	14,661,290
Foundation for the protection of lake Baikal	In-kind/Cash	3,387,097
UNESCO	In-Kind/cash	315,000
Total Co-financing		49,288,169

Tables 5. Breakdown of Focal Area Funding for project and by Component.

GEF Agency	Focal Area	Country Name	Total
UNDP	International Waters	Russia / Mongolia	2,630,000
UNDP	Biodiversity	Russia	1,268,000
Total GEF Resources			3,898,000

Table 6. Breakdown of Focal Area Funding by Output.

Outcomes	International Waters	Biodiversity	Total
Outcome 1: Strategic policy and planning framework.	619,603	298,327	917,930
Output 1.1. Transboundary Diagnostic Analysis of threats to the BB ecosystem including Hövsgöl lake in Mongolia completed.	130,000		130,000

Output 1.2. Study on the Selenga Delta habitat and water quality issues, including toxic pollution and nutrient loading, water level fluxes, sedimentation levels, and the health of the benthic zone.	119,603		119,603
Output 1.3. An assessment of transboundary problems in integrated surface and ground water resources management of the Baikal Basin and corresponding pollution threats.	100,000		100,000
Output 1.4. Pollution hot spot assessment of the transboundary Baikal Basin	100,000		100,000
Output 1.5. Strategic Action Programme (SAP), including joint actions to enhance ecosystem protection.	70,000		70,000
Output 1.6. Biodiversity conservation standards and biodiversity management objectives for tourism (including sport fishing) and mining integrated in SAP, regional development plans; with amendments to EIA policies to address biodiversity risks.	0	298,327	298,327
Output 1.7. Sub-basin watershed management plans incorporating biodiversity management and ecosystem resilience objectives.	100,000		100,000
Outcome 2: Institutional Strengthening for IWRM.	507,286	244,248	751,534
Output 2.1. Joint Commission for the Baikal / Selenga Basin established and capacitated on the basis of the current joint Russian - Mongolian Task Force on Transboundary Water Use and Protection.	100,000		100,000
Output 2.2. Inter-ministerial committees established at national levels.	100,000		100,000
Output 2.3. Training program developed and implemented for key actors in an improved and enhanced, long-term transboundary management of the Baikal Basin.	207,286		207,286
Output 2.4. The harmonized BB Water Quality and Aquatic Biodiversity Monitoring program.	100,000	244,248	344,248
Outcome 3: Demonstrating methods and approaches for water quality and biodiversity mainstreaming.	1,245,970	598,204	1,844,174
Output 3.1. Pilot projects on biodiversity conscious mining approaches.	295,970	298,204	594,174
Output 3.2. Demonstration and strategy development for (dead) livestock disposal to cease periodic anthrax outbreaks.	200,000		200,000
Output 3.3. Pilots for the mainstreaming of biodiversity and ecosystem health management objectives into tourism planning and practice.	350,000	300,000	650,000
Output 3.4. Baikal Information Center, with NGO Forum and Business and Industry Partnerships.	400,000		400,000
Project Management	257,141	127,221	384,362
Grand Total	2,630,000	1,268,000	3,898,000

Part II: Strategic Results Framework.

Objective/Components/ Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Objective: To spearhead integrated natural resource management of the Lake Baikal / Selenga River Basin (including Lake Hövsgöl in Mongolia), ensuring ecosystem resilience and reduced water quality threats in the context of sustainable economic development.	1) Baikal Basin Strategic Action Programme, including mitigation strategies to address climate change to focal species and aquatic/riparian habitat and strategies for invasive species. 2) National Action Plans for national portions of Baikal Basin.	Not completed, approved or adopted.	Completed, approved, and adopted by EoP (end of project)	Endorsement letter from each respective national focal point.	Transboundary collaboration on Baikal basin issues, while long-standing, may have difficulties maturing into a more robust results-based approach. Approved SAP includes real, tangible measures and milestones.
	The long-term security of aquatic biodiversity for at least three sub-basins in the transboundary Baikal Basin as measured by the # of hectares in target sub-basins under improved management.	Zero hectares in these three sub-basins have watershed management plans mainstreamed with biodiversity conservation objectives.	Target: 11,047,790 hectares Russia: Tugnuy-Sukhara basin (4,640,000 ha) Mongolia: Ider River basin (2,275,730 ha) Egiin River basin 4,132,060 ha	Sub-basin watershed management plans; Endorsement letters from MNET and relevant authorities of those plans.	The potential economic returns from non-sustainable development may, in the medium to long run, trump the protection extended by a mainstreamed watershed management plan.
	Pollution levels in pollution hot spot monitoring areas.	Mercury, other mining pollutants at elevated levels in hot spot areas. Specific levels TBD at inception.	Reduction of at least 20% in target areas by EoP.	Field monitoring results.	Mercury may continue to be used illicitly even after alternatives are demonstrated.
	Ecosystem resilience parameters for Hovsgol Lake. - Nutrient concentrations: soluble reactive phosphorus (SRP) /Chlorophyll-a) - Secchi depth ⁹ - Abundance and age structure of Hovsgol grayling ¹⁰	SRP: 0.5-2; Chl-a: 0.2-1 ¹¹ 16-20 meters TBD first summer season of project.	Targets: SRP & Chl-a: No upward change; Secchi depth: no reduction. Abundance and age structure: maintained at baseline levels.	Monitoring data from annual monitoring program.	Exogenous forces (sedimentation from development; pollution) that may affect results.
	# of productive sector policies and regulations that incorporate biodiversity management and	Zero	By EoP a total of 10 policies or regulations modified to incorporate measures to conserve	GEF Tracking Tool	Russian and Mongolian stakeholders will maintain the initiative

⁹ Secchi depth is a simple and cheap indicator valuable to monitoring together with other explanatory indicators. Declines in secchi depth indicate reduced water clarity due to an organic change (increased phytoplankton) or inorganic (rock dust or soil runoff).

¹⁰ The abundance and age structure of Hovsgol grayling is relevant as they depend on spawning habitat in tributary streams as well as production (benthic and pelagic) in the lake. They are sensitive to changes in multiple environments within the watershed. They're also an endangered species, so they're of interest on their own.

¹¹ The Geology, Biodiversity and Ecology of Lake Hovsgol. 2006. pp. 387-402. ed. C.E. Goulden, T. Sitnikova, J. Gelhaus, and B. Boldgiv. Backhuys Publishers, Leiden, The Netherlands.

Objective/Components/ Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
	ecosystem resilience objectives in Russian and Mongolian portions of Baikal Basin. (Improved enabling environment for biodiversity conservation in target productive sectors of tourism, recreation and mining.)		and sustainably use biodiversity: - Tourism: Revised and enhanced tourism plans adopted/not adopted by three target PA in Russia. - Mining: At least 2 policies modified in each country, for total of four. - Sport fishing: At least 1 regulation or policy modified by 2 protected areas in Russia. - Watershed management planning: at least one watershed management planning policy modified in each country.		and policy support necessary to achieve this mainstreaming.
	Replication quantification measure: # of resource users applying biodiversity mainstreaming practices in mining and tourism sectors in Russia and Mongolia Baikal Basin.	Zero	At least 10 mining companies in Mongolia and 10 in Russia by EOP. At least 15 tourism companies in Russia and 15 in Mongolia by EoP	Workshop reports; quarterly reports; field interviews with key actors.	
	Trend of Taimen and Grayling populations in two types of riverine habitat: healthy “stronghold” habitat and degraded “troubled” habitat.	Trend is stable at healthy population levels in strongholds. Egiin River Taimen: 19 individuals/km ¹² Trend is downward or stable at low population levels in troubled areas.	No change in health population dynamic. <i>i.e.</i> : Egiin River: at least 19 individuals/km No deterioration or upward trend of at least 10% improvement.	Monitoring data and fisheries assessments.	Consistent enforcement of EIA and other environmental protection laws
Outcome 1.Stakeholders Elaborate and Adopt a strategic Policy and Planning Framework.	Completed TDA by end of project yr.1	Preliminary TDA during project PPG	Agreed and jointly implemented TDA/SAP providing road map for ecosystem protection, and addressing epidemiological concerns, groundwater pollution issues and attention to high risk	TDA & SAP documents.	Prioritization of national and local funding (and donor support) to implement SAP and study recommendations.

¹² Jensen, O.P. *et.al.* 2009. Evaluating recreational fisheries for an endangered species: a case study of taimen (*Hucho taimen*) in Mongolia. Canadian Journal of Fisheries and Aquatic Sciences. 66:1707-1718.

Objective/Components/ Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
			industrial hot spots.		
	Improved mainstreaming of biodiversity primary and secondary impact considerations into the EIA reporting within the Russian portion of the Basin. # of SAP implementation pilots developed for implementation in Mongolian portion of the Basin.	Biodiversity mentioned in reports but little analysis of potential impacts and no alternative steps proposed in 90% of EIA. No concepts developed.	At least 50% of the EIA reports show measurable improvement in treatment of primary and secondary impact considerations for mining and tourism development projects.	Independent reviews of EIA reporting in the Baikal Basin of Russia. Actual concept documents.	
	New policy and regulatory frameworks incorporating groundwater assessment results.	Some data available on industrial pollution hot spots and on groundwater, but with significant gaps and not linked to .		Increased funding for implementation of SAP and outcomes of studies, as seen in national and local government budgeting.	Willingness of countries to collect and make available pollution discharge data from industries in the region.
	Baikal Basin-Wide Pollution Hot Spot Analysis and Reporting Methodology adopted/not adopted by Joint Commission on Baikal Basin.	No such basin-wide methodology exists or adopted.	Adopted by year 2.	Joint Commission Decision.	Joint Commission will not object to such a hot spot analysis.
	Groundwater protection policy recommendations approved/not approved by the Joint Commission on Baikal Basin.	No such policies exist.	Approved by end of year 3.	Joint Commission Decision.	Joint Commission will not object to such a policy.
	Model sub-basin Essential Fish Habitat (EFH) properly assessed and mapped.	No EFH	At least 12 EFH by year 3 of the project.	EFH maps and habitat assessment document; fish stock assessment recommendations.	Stakeholder expertise will be sufficient to identify EFH.
	# of sub-basin watershed management plans that incorporate biodiversity and ecosystem services management objectives.	None.	At least 2 by end of year 4.	Actual sub-basin plans and official endorsement letter from regional entity (Oblast, Republic, Aimag)	Plans may fail to secure approval.
Outcome 2: Institutional strengthening for IWRM.	Governments of Russia and Mongolia extend/do not extend legal status to Joint Commission on Baikal Basin.	Joint Russian-Mongolian Task Force on Transboundary Waters Use is not a legal entity.	Legal status obtained under Russian and Mongolian law by end of year 3.	Memorandum of Agreement Approved revised organizational status papers.	Joint Commission will receive authority from governments to negotiate joint agreements and will have authority on water as well as biodiversity issues.

Objective/Components/ Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
	Full-time Executive Director of Joint Commission appointed/not appointed.	No full time director of Joint Task Force.	Appointed by year 4.	Appointment letter from relevant Russian or Mongolian organization.	Russian and Mongolian lead organizations will provide resources for the appointment.
	# of National and/or regional Baikal or Selenga inter-ministerial commissions or working groups in Russia and Mongolia.	1 – the Baikal Commission in Russia.	2 additional by EoP: - A Selenga Working Group or Commission in Mongolia; - A Selenga Delta/Baikal Working Group in Buryatia	Ministry level approval in Mongolia of Selenga Commission or Working Group; and Regional Government approval in Buryatia.	Interministerial groups include all pertinent ministries and participants have decision-making authority.
	% improvement in knowledge of key technical aspects of ecosystem-based IWRM management in the following institutions: Baikalkumvod, Buryat regional authorities, PA of Russian Baikal; Water Authority of Mongolia, Ministry of Nature Environment and Tourism (Mongolia); # of people in staff trained in: <ul style="list-style-type: none"> ecological resilience modeling IWRM and basin planning ecological monitoring and risk assessment EIAs, industrial site inspections GIS & spatial planning Avoidance and containment of invasive species Enforcement of water quality and biodiversity regulations. 	Knowledge level TBD at beginning of each training by brief test;	At least 30% improvement for all trainees. - Baikalkumvod: At least 20 people trained. - Buryat regional authorities: at least 30 people. - PA of Russian Baikal: at least 30 people from 3 PA. - Water Authority of Mongolia; at least 20 people; - Ministry of Nature Environment and Tourism (Mongolia): at least 30 people. In total at least 130 people trained by EoP.	Before/after skills tests. Training records; APR/PIR	Financial support from countries for upgrade and continuation of monitoring program Two countries will detail ministry staff plus consultants as necessary to develop the self-assessments
	Strengthened status of Joint Commission.	Joint Commission has no legal status or authority/capacity to do anything.	Legal status granted by Russia/ Mongolia, with first-ever executive director employed.	Reports, legal decisions, interview with executive director. Joint agreements and revised bilateral treaty.	Willingness to increase national funding for transboundary Baikal Basin management.
	# of data parameters jointly monitored on a quarterly basis by the two countries across the Baikal Basin to enable comparability of	Zero	At least 6 by year 3.	Monitoring data and joint monitoring reports on the shared parameters.	Cross border cooperation is achieved on monitoring and data sharing

Objective/Components/ Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
	water quality and species data.				
Outcome 3: Demonstrating technologies for water quality and biodiversity mainstreaming.	% by which 4 pilot mining sites reduce water pollution due to mainstreaming demonstrations.	Baseline to be set during yr 1.	At least 30% by end of year 4.	Monitoring results Before and after testing of pollution loading at selected mining sites.	National & local willingness to try voluntary approaches with private sector.
	# of cases of anthrax diagnosed per year in Barguzinsky and Kurumkansky Districts of the Republic of Buryatia.	8 in 2009.	0 by end of project.	Health records, news reports.	Better livestock disposal may be hampered by high costs of improved solid waste disposal or adequate incineration.
	# of eco-tourism plans approved at regional level (Oblast, Republic) in Russia-Baikal Basin with biodiversity management objectives mainstreamed. # of SAP pilot concepts developed under IW work in Mongolia.	Zero	At least 3 in Russian portion of Baikal Basin by EoP. At least 3 Aimag-level SAP pilot concepts in Mongolian portion by EoP.	Plans themselves.	
	Increase in investment in sustainable ecotourism over life of the project in pilot PA within the Baikal Basin	2010 fiscal year will be the Baseline to be confirmed at project inception.	At least an increase in US\$10 million by end of Project over baseline levels.	Official budgets; Project records; APRs;	Russian Government will continue its support for ecotourism in the Baikal region.
	# of website hits made by Baikal region and Russian/Mongolian stakeholders accessing the Baikal Information Center website.	Zero	Increasing levels during years 2-4 of the project of at least 10% year over year.	Web site visitation reports focusing on visits from the region, from the two countries and worldwide.	Local stakeholders will visit website.
	# of organizations around the Baikal region using the first of an annual “State of the Baikal-Hovsgol Basin” report in Russian, Mongolian and English (Universities, Libraries, Local and National government offices, Management entities and Schools) in Russian and Mongolian portions of the Baikal Basin.	Report does not yet exist.	Published by EoY 4. At least 90 distributed to 30 institutions by EOP; At least 20 downloads of PDF file by country per year.	The report itself.	Stakeholder interest in such a “State of...” report remains strong.
	# of km of Baikal shoreline and tributary rivers cleaned of litter/solid waste; # of news articles published on this	0	50 by EoP	Site observations (before and after) of shoreline; Published articles themselves.	NGOs will maintain interest in participating;

Objective/Components/ Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
	cleaning work around Lake Baikal.	0	20 by EoP		News organizations will cover such events.

SECTION III: TOTAL BUDGET AND WORKPLAN

Award ID:	00060850
Award Title:	PIMS 4347 MFA FSP: Integrated natural resource management in the Baikal Basin transboundary ecosystem
Business Unit:	RUS10
Project Title:	PIMS 4347 MFA FSP: Integrated natural resource management in the Baikal Basin transboundary ecosystem.
Project ID:	00076781
PIMS No	4347
Implementing Partner:	UNOPS

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)	Total (USD)	
Outcome 1: Strategic Policy and Planning Framework	MNRE	62000	GEF	71200	Int'l Consultants	24,000	33,000	48,000	30,000	135,000	1
				71300	Local Consultants	43,225	49,425	54,425	48,175	195,250	2
				71600	Travel	14,500	14,500	0	0	29,000	3
				72100	Contractual Services	215,000	197,000	6,000	0	418,000	4
				72200	Equipment	21,400	0	0	0	21,400	5
				74200	Publications	15,000	0	0	15,000	30,000	6
				75700	Misc-Training	70,000	15,000	0	0	85,000	7
				74500	Misc - Services	1,030	1,000	1,000	1,250	4,280	8
				Total Outcome 1:		404,155	309,925	109,425	94,425	917,930	
Outcome 2: Institutional Strengthening for IWRM.		62000	GEF	71200	Int'l Consultants	46,000	36,000	14,000	0	96,000	9
				71300	Local Consultants	45,000	48,500	39,500	39,500	172,500	10
				71600	Travel	14,000	14,000	14,000	14,000	56,000	11
				72100	Contractual Services	114,000	65,000	40,000	0	219,000	12
				72200	Equipment	0	0	0	0	0	13
				74200	Publications	25,000	40,000	45,000	0	110,000	14
				75700	Misc- Training	0	30,000	30,000	30,000	90,000	15
				74500	Misc - Services	2,320	2,000	2,000	1,714	8,034	16
				Total Outcome 2:		246,320	235,500	184,500	85,214	751,534	
Outcome 3: Mainstreaming ecosystem		62000	GEF	71200	Int'l Consultants	40,000	40,000	46,000	0	126,000	17
				71300	Local Consultants	123,170	126,080	126,080	126,080	501,410	18
				71600	Travel	53,000	53,000	53,000	53,000	212,000	19

services				72100	Contractual Services	0	130,000	230,000	35,000	395,000	20
				72200	Equipment	50,000	19,000	0	0	69,000	21
				74100	Professional Services	5,000	50,000	5,000	60,000	120,000	22
				74200	Publications	0	20,000	30,000	10,000	60,000	23
				75700	Misc- Training	52,000	50,000	130,000	115,000	347,000	24
				74500	Misc - Services	3,000	3,000	3,000	4,764	13,764	25
				Total Outcome 3:		326,170	491,080	623,080	403,844	1,844,174	
Project Management Costs		62000	GEF	71400	Contractual Services - Individual	80,210	80,210	80,210	80,210	320,840	26
				71600	Travel	10,000	10,000	10,000	10,000	40,000	27
				72200	Equipment	13,522	0	0	0	13,522	28
				72400	Communication	1,000	1,000	1,000	1,000	4,000	29
				72500	Supplies	1,000	1,000	0	0	2,000	30
				74500	Misc - Services	1,000	1,000	1,000	1,000	4,000	31
				Total Management		106,732	93,210	92,210	92,210	384,362	
GRAND TOTALS		62000	GEF	71200	Int'l Consultants	110,000	109,000	108,000	30,000	357,000	
				71300	Local Consultants	211,395	224,005	220,005	213,755	869,160	
				71400	Contractual Services - Individual (Management)	80,210	80,210	80,210	80,210	320,840	
				71600	Travel	91,500	91,500	77,000	77,000	337,000	
				72100	Contractual Services	329,000	392,000	276,000	35,000	1,032,000	
				72200	Equipment	84,922	19,000	0	0	103,922	
				72400	Communications	1,000	1,000	1,000	1,000	4,000	
				72500	Supplies	1,000	1,000	0	0	2,000	
				74100	Professional Services	5,000	50,000	5,000	60,000	120,000	
				74200	Publications	40,000	60,000	75,000	25,000	200,000	
				75700	Misc -Training	122,000	95,000	160,000	145,000	522,000	
				74500	Misc - Services	7,350	7,000	7,000	8,728	30,078	
				Total Project		1,083,377	1,129,715	1,009,215	675,693	3,898,000	

	Budget Note
1	Causal chain TDA workshop leader expert (33k); Lead consultant on pollution hotspot analysis (24k); SAP development expert to lead SAP preparation exercise (48k); Sub-basin watershed management planning expert (30k);
2	PM technical input to strategic policy and planning (15 weeks @ 750/wk = 11,250). ABE - (80weeks @ 700/wk = 56,000); Science Advisory/Expert Working Group for TDA (5 members @ 16 weeks each = 80k); Working group to draft SAP elaborating biodiversity management objectives for key economic sectors of Baikal Basin (3 members @ 16 weeks each = 48000);
3	Travel costs for four int'l experts, air fare, dsa. (29k).
4	UNESCO subcontract to lead ground water assessment work under Output 3 and Khara River pollution assessment (250k); Selenga Delta Study (92k); Pollution hotspot assessment of the transboundary Baikal Basin (70k); EIA and tourism policy analysis for mainstreaming opportunities/constraints (6K).
5	Field testing equipment for groundwater quality and sediment contamination.
6	TDA published in Russian, English, Mongolian 15k; State of Baikal Basin Report (15k);
7	Baikal Science Symposium (70k); Workshops for SAP development 15k.
8	Miscellaneous
9	Capacity Assessment and Training Programme Development Expert (20 weeks = 60k); Water law expert (12 weeks or 36k)
10	PM technical input to pilot work to institutional strengthening (18 weeks 13.5k). ABE technical input to pilot work (70 weeks @ 700/wk = 49k); SAG support for Joint Commission, 5 people each @ 2 weeks each/year @ 1000/week (40k); 2 water law experts (Russia and Mongolia) -- 20K. 2 mining law experts (18k); Two capacity self assessment/training experts to work with int'l experts. 16 weeks each or 32 weeks -- 32,000.
11	Joint Commission meetings at 10,000 each. Domestic travel associated with work under this component. Meeting costs/DSA for the Interagency Working Group on Selenga Basin - Mongolia--5 people 2x/year 2 days (16k) with PMU support;
12	Output 2.3 Knowledge management/Training programme and module development (39k); harmonized Baikal Basin water quality monitoring programme (190,000)
13	Zero budgeted.
14	Output 3.3 Knowledge management/Training module development (90,000); Training modules printed and made available on the web (20k).
15	Training events covering the costs of bringing people from around Russia to training venues for targeted training in key issues relevant to ecosystem conservation and mainstreaming biodiversity into productive sectors in Baikal.
16	Meeting logistics costs associated with pilot activities, community working groups, Mapping and documentation for tourism management planning.
17	Biodiversity Mainstreaming and Mining Expert (16 weeks 48k). Biodiversity mainstreaming and Tourism specialist (16 weeks 48k); Public participation strategy expert (10 weeks 30k).
18	PM technical input 19 weeks (14.25k); ABE 58 weeks = 40.6k); Technical Communications and Partnership Building (208 weeks = 128,960); TCD-M -- (208 weeks = 145.6k); TA-M (208 weeks = 104k); Interactive SPA website design for web-based Baikal Center completed (20k). Mainstreaming biodiversity objectives into mining and tourism (2 experts 1k/week 12 weeks each or 24k); Veterinary and sanitation experts (2 experts 1000/week, 24 weeks total or 24k);
19	Improving transboundary cooperation 1 conference, 2 workshops, 3 support meetings for JC (80k); Study tours to pilot sites (60k); PTC travel to pilot regions

	(8k/year x 4 = 32k); Travel costs associated with monitoring/collecting monitoring data (40K).
20	Aquatic biodiversity mainstreaming approaches for four case study situations within the mining sector of the Baikal Basin (130k); Aquatic biodiversity compatible tourism planning and training for Russian Baikal and for Mongolian Baikal (130k); Pilot biodiversity friendly sport fishing program 135k.
21	Water quality monitoring buoys (50k); Practical simple field monitoring equipment for mainstreaming demonstrations.
22	Audit (20k); Mid-Term and Terminal Evaluations (100k)
23	Guidelines in Russian and Mongolian for mainstreaming biodiversity conservation objectives into mining, tourism and sport fishing practice (30k) Baikal information center online publications and content production and maintenance (80k)
24	Inception workshop, SC (52k), field visits, Closing workshop (25k); Peer to peer training on mainstreaming in mining, tourism and sportfishing using pilot site areas (180,000); Baikal NGO forum (90,000);
25	Miscellaneous
26	Cost of management-related input of PMCU staff time (PM, PSMs, FA)
27	Management-related travel to project sites
28	Laptops for mobile management across 11 time zones and two countries
29	Communications costs for staff while traveling – mobile cards, skype out calls, etc..
30	Miscellaneous office supplies, batteries, etc.
31	Office equipment repair, servicing, unforeseen service needs for any modern office.

Quarterly Workplan

Outputs	Activities	Yr 1				Yr 2				Yr 3				Yr 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Outcome 1. Strategic Policy & Planning																	
1.1: Transboundary Diagnostic Analysis of threats to the Baikal Basin ecosystem including Hövsgöl lake in Mongolia completed	1a) Establish Science Advisory Group																
	1b) Hold Science Symposium within 6 months of project inception																
	1c) Hold stakeholder meetings, to include civil society, industry and local government representatives, to discuss ecosystem threats.																
	1d) Revise and enhance preliminary TDA, including causal chain analysis																
	1e) Update TDA as a Baikal Basin State of the Environment Report no later than 6 months prior to the end of the project, including evidence of status changes since the initial TDA.																
1.2: Study on Selenga Delta habitat and water quality issues, including PTS and nutrient loading, water level fluxes and health of sediment and benthic organisms	2a) Establish / upgrade monitoring sites at inflow, midpoint and outflow locations in the Delta.																
	2b) Establish baselines relating to water balance and fluxes, water quality, the composition of benthic systems and sediment, diversity of aquatic flora and fauna (including presence of alien species), and presence/use of terrestrial species.(yr 1-2)																

	2c) Develop and present analysis on the impact to delta flora and fauna of changing water conditions, including recommendations on optimal flows; as well as in-stream constructed wetlands and other design options to reduce the flow of pollutants into and through the delta (yr 2)																
	2d) Monitor water quality and flora/fauna conditions at monitoring sites on permanent basis																
1.3 Assessment of transboundary problems in integrated surface and ground water resources management in the Baikal Basin and corresponding pollution threats.	4a) Undertake groundwater assessment of the basin using available monitoring sites.																
	4b) Provide monitoring results for the Basin Database, TDA and SOE reports.																
	4c) Link with training / capacity building activities (see output 2.1.4) to improve environmental inspections and enforcement of regulations for avoiding groundwater contamination.																
	4d) Develop and cost out recommended national groundwater management policies for each country, including inter-sectoral integration and planning, well head protection, expanded groundwater monitoring (see output 2.1.5)																

1.4 Pollution hot spot assessment of the Basin, including a prioritized list of projects to be considered for future investment, the development of prefeasibility studies and revised regulations to reduce industrial pollution loading into the Baikal/Selenga basin.	5a) Identify and map all significant industrial hot spots in the Basin, including both active and closed industrial facilities. Prioritize hot spot list based on significance of known risk to surface and groundwater, focusing on: a) waters used for drinking water abstraction, b) proximity to PA, Lake Baikal and Lake Hövsgöl, and spawning grounds c) specific hazardous pollutants used in processes or stored d) significant threat in case of natural disaster: e.g. earthquake or flood.															
	5b) Review and rank upgrade needs for Selenga basin municipalities, including ID of ongoing and planned water and sanitation projects.															
	5c) Provide assistance to high risk / high priority hot spots for a) development of pre-feasibility studies for remediation on closed facilities, b) training for active concerns on PTS, POPs & UOPs, management, c) recommendations on environmental investments on active concerns to reduce pollution discharge.															
	5d)Develop recommendations on revised regulations and inspection policies for large industrial facilities in the region															
1.5. Strategic Action Programme (SAP) under implementation, including joint actions to enhance ecosystem protection	6a) Form ad hoc SAP drafting group to develop and submit draft SAP for consideration by the Science Advisory Group and Joint Commission.															
	6b) Submit SAP draft to both governments for approval at Ministers meeting (Yr 3)															

	6c) Provide advise and assistance to both countries on SAP implementation (yr 4)																
	6d) Monitor country achievement of SAP implementation																
1.6: Biodiversity conservation standards for tourism, mining, fisheries and livestock management developed, integrated in SAP and local legislation, regional development plans; with amendments to EIA policies to address biodiversity risks;	7a) Elaborate best practice conservation standards for tourism, mining using international and regional examples.																
	7b) Provide gap analysis concerning best practices and the existing policies and standards in Russia and Mongolia. Develop recommendations for changes to local and national policies, legislation and regional development plans to enhance biodiversity protection.(Build on findings and recommendations from self-assessments developed in 2.1.3)																
	7c) Propose ecotourism and pollution avoidance aspects for tourism plans in the region, especially those being developed in Irkutsk and Buryatia.																
1.7: Sub-basis watershed management plans development (for Mongolia) and implemented (for Russia).	8ma) hold kick off meeting with local officials in each basin																
	8mb) collect data on economic activities, such as transportation, industry, agriculture and tourism and their impacts on the environment: (e.g. water quality, biodiversity),																
	8mc)draft sub-basin management plan(s)																
	8md) present plan(s) to key stakeholders in series of workshops																
	8me) revise and submit plans for government approvals																

	8mf) establish training and capacity building as necessary for newly responsible agencies																
	8mg) assist Mongolian government on policy and legal changes requires																
	8mh) Hold workshops with agencies focusing on industrial development and tourism to forge cooperation																
	In Russia: 8ra) Assess current basin management strengths and weaknesses																
	8rb) Launch capacity building and training program (also see output 2.1.4.) for sub basin managers, on integrated planning, mapping using GIS, and biodiversity monitoring																
	8rc) Hold workshops with agencies focusing on industrial development, transportation and tourism to forge closer cooperation.																
Outcome 2: Institutional strengthening for Integrated Water Resource Management (IWRM)																	
2.1: Joint Commission for the Baikal / Selenga Basin established and capacitated on the basis of the current joint Russian - Mongolian Task Force on Transboundary Water Use and Protection.	1a) Assist countries with selection, capacity building and information transfer to new Joint Commission participants																
	1b) Facilitate Joint Commission inception meeting and annual meetings																
	1c) Facilitate support of Science Advisory Group to the Joint Commission																
	1d) Support Joint Commission review process for TDA and SAP approvals																

	1e) Support Joint Commission efforts to draft new Treaty																
2.2:Inter-ministerial committees at national levels tasked with managing the decision-making process to approve and implement Baikal basin initiatives, incl. integrated sub-basin watershed management plans, TDA/SAP.	2a) Designation by countries of participants and holding of interministerial meetings																
	2b) At country request, participate in interministerial meetings to clarify purpose, benefits and impacts of proposals, including TDA/SAP, transboundary waters treaty, etc.																
2.3:Training program carried out for key actors in an improved and enhanced, long-term transboundary management of Baikal Basin.	3a) Develop guidance for self-assessments																
	3b) Hold training workshops for persons carrying out self-assessments																
	3c)Carry out assessments and issue reports; including recommendations on training to be addressed under project output 2.1.5 and identification of needs for strengthening biodiversity standards (developed through activity 1.1.7)																
	3d) Identify participants and the institutes and consultants to carry out training program																
	3e) Develop training materials (including translation) – for on site and distance learning																
	3g) Monitor results through questionnaires and web communications & revise program based on lessons learned																
	3h) Completion review and post-project continuation planning																
	5a) Identify, assess and map water																

	quality monitoring activity in the basin, including number, location technology and contaminants screened at all monitoring sites; analysis capabilities as well as monitoring protocols (include results from Selenga Delta study 1.1.2)																	
2.4: The harmonized Baikal Basin Water Quality Monitoring program set under implementation, including upgraded monitoring stations.	5b) Conduct inter-calibration exercise																	
	5c) Develop early warning program to notify downstream users in the case of acute threats from water-borne pollutants.																	
	5d) Conduct pollution warning / alert / response simulation(s)																	
	5e) Develop recommendations and cost enhancements to existing monitoring regime																	
	5f) Upgrade monitoring systems in both countries																	
	5g) Follow up assessment during yr 4 of monitoring program progress.																	
Outcome 3: Mainstreaming ecosystem services.		3a) ID priority demonstration sites.																
3.1: Strategies implemented at 3 sites for mainstreaming biodiversity into mining.	3b) Carry-out on-site inspection of the selected mining facilities																	
	3c) Elaborate voluntary and mandatory approaches to avoid or minimize pollution and sedimentation threats to aquatic ecosystem health.																	
	3d) Negotiate agreement with mine management and government on																	

	protection effort and incentives.																
	3e) Implementation of recommendations by participating industries																
	3f) Monitor sites during project years 3 & 4.																
	3g) Publicize achievements and draft replication strategy																
	2a) Review incidences of anthrax outbreaks over last 20 years																
3.2: Demonstration and strategy development for (dead) livestock disposal to cease periodic anthrax outbreaks	2b) Carry out on-site inspections of rendering plants and waste disposal facilities																
	2c) Assess carcass handling practices leading to outbreaks and develop / cost out needed improvements in handling and disposal																
	2d) Review and provide recommendations concerning state veterinary inspections																
	2e) Seek country and international financial sources for implementing recommendations																
	2f) State agencies and industries to implement recommendations																
	2g) Monitor improvements and any subsequent outbreaks																
	1a) Develop biodiversity compatible tourism plans.																

3.3: Pilot for mainstreaming biodiversity and ecosystem health management objectives into tourism planning and practice.	1b) Pilot/model sport fishing program on low-impact sensitive sport fishing tourism in the Baikal Basin.																
	1c) Conduct peer to peer training using pilot area as training base.																
	5a) Develop communication and public awareness plan																
3.4: Replication set: Lake Baikal Center to support dissemination of pollution-prevention and biodiversity conservation technologies; series of forums for industry interests on sustainable development priorities; support to NGOs rendered.	5b) Launch web site (translated) and update																
	5c) Conduct surveys of tourists to determine pollution awareness and ecotourism interests																
	5d) Develop documentary concept and agree with Russian & international institutions (BBC, National Geographic, etc) on its development																
	5e) Establish the Baikal Industry Roundtable with private sector support, serving as a mechanism for exchanging views and also initiating public/private partnerships for water quality and biodiversity protection measures																
	5f) Establish the Baikal NGO Forum, providing a link to local NGOs.																
	5g) Develop a set of high profile activities, including shoreline cleanup campaigns for Lake Baikal, Lake Hövsgöl and																

	the Selenga River, with NGO and Industry support, framed around an annual week of events during peak tourism season (July/August).																
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SECTION IV: ADDITIONAL INFORMATION

PART I: Letters of Endorsement and Financial Commitment.

Attached as a separate document.

PART II: Terms of Reference for Key Project Staff

260. The core Project Management Unit (PMU) will be located in the offices of the Regional Government of the Republic of Buryatia, in Ulan Ude, Russian Federation, with two technical consultants based in Ulaanbaatar, Mongolia. The PMU will be staffed by the following positions:

Regionally recruited:

- Project Manager & Technical Director
- Aquatic Bioresources Expert (ABE) (Technical)
- Finance Officer (FO)
- Project Administration & Logistics Officer (PAL)
- Project Technical Director – Mongolia and Russia (Technical)
- Technical Assistant – Mongolia and Russia

Project Manager and Technical Director (PMTD)

Ulan Ude, Russian Federation

The Project Manager and Technical Director (PMTD) shall be responsible for providing critical technical input to project implementation and overall management and supervision of the GEF project. He/she will manage and provide overall supervision for all GEF staff in the Project Management Unit (PMU). He/she shall liaise directly with the Regional Coordinator UNDP-GEF, National Focal Points (NFPs) and project partners in order to develop the annual work plan for the project.

He/she will report to the UNDP-GEF Regional International Waters Advisor located in Bratislava. He/she shall consult with, and coordinate closely with, the Principal Project Resident Representative, senior representatives of partner agencies as well as the respective UNDP officers the Russian Federation and Mongolia.

Duties:

The PMTD will have the following specific duties:

Management:

- 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;
- Provide manage leadership of the Baikal / Selenga project - both organizational and substantive matters – budgeting, planning and general monitoring of the project, the PMU, its staff, budget and its imprest fund.
- Ensure adequate information flow, discussions and feedback among the various stakeholders of the project;
- Prepare annual work plans and implementation of project activities in full consultation with the Steering Committee and the Joint Commission. The work plan will provide guidance on the day-to-day implementation of the project document noting the need for overall coordination with other projects and on the integration of the various donor funded parallel initiatives.
- Catalyze the adaptive management of the project by actively monitoring progress towards achievement of project objectives vis-a-vis the agreed progress indicators and applying the resulting insights to the project's ongoing work; 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 GEF quarterly project progress reports, as well as any other reports requested by the Executing Agency and UNDP;
- Guide the work of consultants and subcontractors and oversee compliance with the agreed work plan;
- Monitor the expenditures, commitments and balance of funds under the project budget lines, and draft project budget revisions;
- Assume overall responsibility for the 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;

Technical Input:

- Provide critical and significant water resources-related technical input to project implementation based upon professional background and experience. This technical input to be agreed and detailed with UNDP at project inception.
- Provide overall technical guidance and consistency of vision for project's integrated water resources management approach as manifested through the development of related sub-contracting documents;
- Effectively and efficiently implement the project activities towards full achievement of its stated objectives and for all substantive, managerial and financial reports from the Project.
- Engage in a constructive dialogue with the NFPs and project partners worldwide to maximize consistency and synergy between the various project components.
- Provide technical input to and be responsible for preparation of the development of Terms of Reference for consultants and contractors.
- Arrange for the timely recruitment and procurement of quality services and equipment and for implementation of project activities of in accord with applicable rules, regulation and standards;
- Foster and establish technical best-practice links with other related regional initiatives and, where appropriate, with other regional International Waters and Biodiversity programmes.
- Interact on a technical, substantive level with the members of the Joint Commission and its Science Advisory Board in order to maximize sustainability of project-inspired outcomes under the long-term umbrella of the BB JC.
- Catalyze the development of private sector partnerships for complementary technical activities and to improve sustainability of project-inspired actions.
- Provide overall technical guidance to maintain and develop the project web-site seeking and incorporating data and information from all project partners;
- Provide overall technical guidance to development of web-based information and reporting:
- Represent the project at the Steering Committee meetings, technical meetings and other appropriate fora.
- Undertake any other actions related to the project as requested by UNDP.

Skills and Experience Required

Post-graduate degree in environmental management or a directly related field, e.g. water resources engineering, limnology, natural resources economics; at least fifteen years experience in fields related to the assignment including ten years of experience at a senior project management level. Must be able to demonstrate ability to make significant technical and management contributions to project implementation. Demonstrated diplomatic and negotiating skills; familiarity with the goals and procedures of international organizations, in particular those of the GEF partners; excellent knowledge of English and Russian.

Duty Station:Ulan Ude, Russian Federation

Duration:Four years on a fixed-term contract

Suggested Grade:TBD

Project Administration and Logistics Officer (PAL)

Ulan Ude, Russian Federation

Under the supervision of the Project Manager and Technical Director (PMTD), the PAL will manage the day to day operations of the PMU, particularly with respect to finances, technical services, procurement and personnel matters, all to be carried out in close cooperation with the counterpart staff of UNOPS and the UNDP Country Offices in Moscow and Ulan Bator. The post holder will be the principal line of liaison between the PMU and the UNOPS PMO in all financial and administrative matters.

Duties

The PAL will have the following specific duties:

- Ensure the proper day-to-day functioning of the PMU by supervising the provision of all necessary supplies and services including maintenance contracts, office supplies and communications. He/she will personally supervise the FO. He/she shall be responsible for the proper running and upkeep of the PMU hardware including the computers, copiers, etc.
- Prepare draft budget revisions and working budgets in consultation with the UNOPS and PM;
- Administer the petty cash and impress account on behalf of the PM and prepare relevant documents including monthly cash statements, requests for replenishment and budget reviews and revisions. He/she shall oversee the work of the Administrative Assistant regarding financial issues. The PAL shall also be responsible to arrange for due payments.
- Assist the PM to prepare special budget and financial statements for Steering Committee and Donor meetings, etc) and to regularly brief the PM on the financial status of the project.
- Assist all the PMU staff with personnel matters relevant to the performance of official duties. This work, with support from the FO, will include the obtaining of visas for official missions and assistance to newly arriving or departing staff for shipment of their personal effects, opening bank accounts, etc. 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 support of the FO. 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 PMU. 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.

Skill and Experience Requirements

Degree in administration or a directly relevant field; three years proven experience in administration and budget management; fluency in English and Russian; proven experience in the management of computer or other office technology equipment; good knowledge of UNDP policies and regulations.

Duty Station: Ulan Ude, Russian Federation

Duration: four years

Suggested level /grade: TBD

Finance Officer (FO)

Ulan Ude, Russian Federation

Under the supervision of the Project Manager & Technical Director (PMTD) the Operations & Logistics Assistant (FO) will provide support to the PMTD and assist the PAL to perform his/her tasks.

Duties

The FO will have the following specific duties:

- Provide general administrative support to ensure the smooth running of the PMU.
- Project logistical support to the PAL and PMTD and project consultants in conducting different project activities (trainings, workshops, stakeholder consultations, arrangements of study tour, etc.).
- Prepare and maintain the local records of project accounts, particularly those pertaining to the imprest fund. He/she shall prepare all relevant documents for administering the imprest account for final approval by the PMTD, 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 counterpart 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 and budgetary aspects of the implementation of the programme including the following specific duties.
- Monitor expenditures entailing monitoring the Interagency agreements, review of the executing agency finance records of expenditures against MODs and budget lines.
- Assist the project staff to prepare budgets for meetings and activities and to review incoming authorizations to ensure adequate recording against budget lines.
- During the visits of foreign experts, bear the responsibility for their visa support, transportation, hotel accommodation etc.
- Assist the control of budget expenditures by preparing payment documents, and compiling financial reports.
- Maintain the project's disbursement ledger and journal & keep files with project documents, expert reports.
- Develop, edit and electronically publish on website a regular information bulletin on the project activities including updated events calendar
- Provide English translation as required.
- Draft correspondence and documents; finalize correspondence of administrative nature; edit reports and other documents for correctness of form and content.
- Arrange duty travel.
- Act on telephone inquiries, fax, post and e-mail transmissions, and co-ordinate appointments.
- Perform any other administrative/financial duties as requested by the PMTD.
- Organize and coordinate the procurement of services and goods under the project.

Skills and Experience Required

Degree in a directly relevant field; proven experience in accounting; fluency in English and Russian; proven experience in the management of computer or other office technology equipment; good knowledge of UNDP policies and regulations.

Duty Station:Ulan Ude, Russian Federation

Duration:four years

Suggested level /grade: TBD

Aquatic Bioresources Expert (ABE)

Ulan Ude, Russian Federation

The Bioresources and Data Management Expert (ABE) shall be responsible for overseeing and providing technical input to the project's ecosystem-based bioresources management-related activities and related data and information management work. This will include information capture, exchange and networking between a wide range of participants in the project including government officials, international partners, scientists, non-governmental organizations and the public at large. He/she will work closely with institutional focal points, project partners, international and national NGOs, industry, academia and public and will cooperate with and encourage activities of other partners in this field. He/she shall work under the direct supervision of the Project Manager & Technical Director (PMTD) within the Project Management Unit (PMU), which will be established in Ulan Ude.

Duties

He/she will have the following specific duties:

- Work closely with the PMTD in the project's work with ecosystem-based management, monitoring, capacity building and habitat conservation.
- Take the lead in cultivating and building solid working relationships with bioresource management colleagues in the Russian Federation and Mongolia, in particular supporting the work of the Science Advisory Board.
- Assume responsibility for overseeing implementation of the bioresources-related activities under the project's annual workplan.
- Develop and maintain the EBM-bioresource management elements of the project website building fully upon website materials and coordinating closely with the TCIS in this regard.
- Provide significant technical input and guidance to the project's work on TDA / SAP development and especially biodiversity related demonstration project activities, working closely with regional and international experts to this end.
- Identify data & information sources and arrange for collection, storage, updating, and maintenance of same in electronic and hard forms copy forms as applicable.
- Facilitate and supervise data exchange and the maintenance of the bioresources data communications network among cooperating institutions in both countries.
- Liaise with project partners, donors, and specialized UN agencies, international and national NGOs, academia, industry and other stakeholders on ecosystem-based management of bioresources.
- Lead and effectively participate in IT capacity building activities under the project including organizing training initiatives.
- Assist with the administration of other information-related technical issues where required by the PMTD.

Skills and Experience Required

Post-graduate degree in bioresources, fisheries or aquatic science or a directly related field; at least five years experience in similar international posts dealing with sustainable use and conservation of bioresources/biodiversity; proven experience with computer data bases, GIS. Web site design experience helpful. Experience in training other specialists and fully fluent in English and Russian including a proven

writing and editing ability; familiarity with the problems and opportunities of the Baikal region would be a major advantage.

Duty station: Ulan Ude, Russian Federation

Duration: 4 years

Suggested Grade: TBD

PART III: Stakeholder Involvement Plan

A) Summary of information dissemination, consultation, and similar activities that occurred during preparation/PPG.

261. Stakeholder Analysis developed during PPG, including select interviews.

262. On April 29, 2008 a stakeholder meeting was held in Ulan Ude with local officials and experts to prepare the preliminary TDA and discuss project objectives.

263. During the April 29 meeting, stakeholders (represented by Interdepartmental Commission on Protection of Lake Baikal comprised of the decision-makers and representatives of major nature users and public) noted slowly increasing anthropogenic loads into Lake Baikal, including from waste water discharges, solid waste, pollution from Baikal pulp and paper plant, littering of Baikal water area, etc). Also noted were increasing concerns over groundwater pollution from industrial sources (for example, Ulan-Ude industrial hub). Participants singled out the metal mining industry as negatively affecting the state of water bodies in the Basin, for instance, the complex ore extraction at Kholodninskoye lead-zinc pyrite deposit located at the border line of the Baikal Lake area, and discharging pollutants into the Selenga Delta World Heritage site.

264. Stakeholders at the workshop indicated a high degree of stakeholder interest, as witnessed by a large number of regulatory and organizational nature protection actions aimed at protecting the lake Baikal ecosystem. In particular stakeholders mentioned the Russian government's decision to change a gas pipeline route away from the shores of lake Baikal as evidence of public pressure and the high value placed nationally on the lake. A number of legislative acts have been adopted to regulate Baikal environment protection; a map of the central ecological zone has been prepared; additional funding has been allocated for water resource protection actions; the Russian Joint Commission is functioning, and the Russian-Mongolian Agreement on Selenga river basin is in force.

B) Stakeholder identification -- list of stakeholder groups and the types of their involvement in the proposed project.

RUSSIAN FEDERATION (RF)

Name of Institution	Responsibilities Relevant to Outcomes/Outputs	Roles in the Project
Interdepartmental Commission		
Ministry of Foreign Affairs (MoFA)		
Ministry of Natural Resources and Ecology (MNRE)	<p>Elaborates and implements state policy and normative and legal regulation for environmental protection, including the monitoring, use, reproduction, and protection of natural resources and the environmental, including wildlife and their habitats. Responsible for network of federally specially protected natural areas in Russia. Serves as the National Focal Point.</p> <p>Regulation of use of water and mineral resources and ensuring functioning of Specially Protected Nature Areas (PA)</p>	<p>Point of contact for all project outputs related to strengthening protected areas management, including (1.8): sub-basin management plans; (2.3): capacity self assessments; 2.4): training; (3.4) pilot on conservation strengthening.</p>
Federal Agency for Water Resources, Department of Water Resources of Lake Baikal	<p>Management and control of federal water resources; Develop and implement: river basin agreements on rehabilitation and protection of the water bodies; Oversight of water quality control; State monitoring of water bodies;</p> <p>Implementation of the Selenga Basin Agreement and local aspects of the Helsinki Agreement on Transboundary Watercourses</p>	<p>Key participant for (2.1) Joint Commission, (1.1) TDA and (1.5) Hot Spot Analysis and (1.6) SAP approvals</p>
Federal Service for Hydrometeorology and Environmental Monitoring,	<p>Maintains the state water cadastre for surface water bodies, as well as monitoring of surface water, air, continental shelf, and the exclusive economic zone. Determines requirements for environmental surveys and maintains the Unique State Data Fund on the state of the natural environment.</p> <p>Implementation of the Selenga Basin Agreement and local aspects of the Helsinki Agreement on Transboundary Watercourses</p>	<p>Key participant for (2.1) Joint Commission, and coordinating body for (2.5) water quality monitoring and (1.2) Selenga Delta study</p>
Int'l Cooperation Dept, Conventions and Int'l Organizations Division	<p>Responsible for liaising with MoFA and international organizations on relevant international conventions and international projects.</p>	<p>Main liaison between MNRE and the Baikal / Selenga PMU</p>
Federal Environmental Protection Agency (Rossprirodnadzor)	<p>Control and surveillance in the field of: protection, use and reproduction of wildlife and their habitats; Operates the national system of federal protected areas.</p>	<p>Involved under Ministry of natural resources for outputs related mainstreaming biodiversity into productive sector practices (tourism and mining); and for</p>

Name of Institution	Responsibilities Relevant to Outcomes/Outputs	Roles in the Project
Ministry of Agriculture Federal Agency for Fishing (FAF)	Responsible for the elaboration and implementation of the state fishery policy and regulations in fishery management, study, and protection; fish processing, and aquatic and marine bioresources.	Involved with outputs related to fisheries and agriculture, including (1.7) conservation standards for fisheries and (3.4) resurgence of Taimen, Lenok and Grayling species. Also point of contact with health ministry for anthrax avoidance demo (3.2)
	Responsible for the rational use, study, conservation, and reproduction of aquatic bioresources and their habitats; integrated study of aquatic bioresources including stock assessments; Conducts fundamental and applied scientific studies connected with fisheries and fishing; Monitoring of aquatic bioresources and survey of activity of fishery vessels; Artificial reproduction of aquatic bioresources; Rehabilitation of aquatic resources and their habitats destroyed as the result of natural disasters and other causes; Implementing decisions made by international fishing commissions and organizations.	Involved under Ministry of Agriculture with outputs related to fisheries and agriculture, including (1.7) conservation standards for fisheries and (3.4) resurgence of Taimen, Lenok and Grayling species
Ministry of Energy & Electric Power Enterprises	Angara Cascade and Irkutsk Hydroelectric power Station	Involved in considerations of Baikal water levels, as included in the Selenga Delta study (1.2)
Ministry of Health and Social Development	Responsible for national health services	Point of contact for completion of the Epidemiological Study (1.3) and anthrax avoidance demo (3.4).
Ministry of Transport	Responsible for elaborating state policy on and for managing and maintaining transportation infrastructure. Activities include: inspection, design, construction, renovation, maintenance of waterways and canals, marine and river ports.	Member of inter-ministerial committee, (2.2) and looking into transportation related pollution issues for lake Baikal and Lake Hövsgöl.
Regional (oblast) and municipal executive authorities	Management of local economic development	Providing participants in capacity building / training effort (2.4).
Russian Academic Institutions	Baikal Scientific Council, Institute of Limnology, Baikal Institute on Nature Use, Institute of Ecology and Evolution Problems after A.N. Severtsov, Joint Russian-Mongolian Integrated Biological Expedition of RAS and MAS	Providing experts to serve on the Science Advisory Board as well as local experts for the carrying out of various TDA studies
Industry	Mining, processing, electric power, transport, river and lake transport	Selection of representatives to participate in industry round tables, and also voluntary participation in several demonstration efforts:
Agriculture & Forestry	Fisheries, fish farming, cattle (and nomad) farms, crop farming, forestry enterprises,	
Tourism and Recreation	Recreation and tourism, game hunting and sports fishing enterprises	Included as stakeholders to contact during TDA review (1.1) and as part of tourism planning (1.6)

Name of Institution	Responsibilities Relevant to Outcomes/Outputs	Roles in the Project
		and (3.4) conservation strengthening
Public	Nongovernmental environmental organizations (WWF-Russia, Greenpeace-Russia, IUCN-Russia, RREC, and others) , religious organizations,	Participation in the NGO forum and public awareness activities (3.5)

MONGOLIA

Name of Institution	Responsibilities Relevant to Outcomes/Outputs	Roles in the Baikal/Selenga Basin Project
Water Agency, Selenga Basin Council, Ministry of Nature, Environment and Tourism (MNET)	<ul style="list-style-type: none"> Responsible for implementation of the Basin Agreement on the Selenga and monitoring of hydrological condition of waters (along with Agency of meteorology) Decisions-making on interim or partial modification of rivers flow direction, identification of water flow volume, development of findings on the water basins areas use projects; Development of and compliance with the technical specifications on reduction of production sewage waters discharge volumes; and Development of professional findings for survey works Development of environmental and economic assessments of indices of qualitative and quantitative characteristics of water resources; 	Key participant for (2.1) Joint Commission, (1.1) TDA and (1.5) Hot Spot Analysis and (1.6) SAP approvals and (1.4) groundwater study
Ministry of Construction and Urban Development	Implementing projects on water supply and waste water treatment in cities and settlements, construction of water canals and treatment facilities	Providing participants in capacity building / training effort (2.4).
Institute for Hydrology and Meteorology at National Agency of Meteorology, Hydrology and Environmental Monitoring, MNET	<ul style="list-style-type: none"> Responsible for monitoring of hydrological condition of waters 	Key participant for (2.1) Joint Commission, and coordinating body for (2.5) water quantity monitoring
Specialized Inspection Agency	Authority that ensures enforcement of laws and legislations in the area of natural and environmental protection. This Agency is supervising the implementation by the water users of permitted norms for pollutants discharge and is fining in cases of violation of the legislation in force.	Involvement in inspection and enforcement / compliance activities, including (1.3) epidemiological study, (1.4) groundwater; (1.5) pollution hot spot analysis; providing participants in capacity building / training effort (2.4).
Ministry of Food, Agriculture and Light Industry	Fisheries, fish farming, cattle (and nomad) farms and crop farming.	Involved in efforts to mainstream biodiversity conservation into agriculture (1.7);
Industry	Mining, processing, electric power, transport	Selection of representatives to participate in industry round tables, and also voluntary

Name of Institution	Responsibilities Relevant to Outcomes/Outputs	Roles in the Baikal/Selenga Basin Project
		participation in several demonstration efforts:
Tourism and Recreation	Recreation and tourism, game hunting and sports fishing	Included as stakeholders to contact during TDA review (1.1) and as part of tourism planning (1.6) and (3.4) conservation strengthening
Public	Nongovernmental environmental organizations	Participation in the NGO forum and public awareness activities (3.5)

INTERNATIONAL PARTNERS

Name of Institution	Responsibilities Relevant to Outcomes/Outputs	Roles in the Baikal/Selenga Basin Project
UNESCO	Lead UN Educational and Scientific Organization with Academic UNESCO Chair positions in Russia and Mongolia	Partner supporting implementing groundwater investigations (outputs 1.4)
BRGM	BRGM is France's leading public institution involved in the Earth Science field for the sustainable management of natural resources and surface and subsurface risks	Partner supporting implementing groundwater investigations (outputs 1.4)

C) Stakeholder participation -- long-term involvement in decision-making and implementation;

265. The indicative roles and responsibilities of relevant stakeholders in project implementation is described above. Long-term involvement in decision making and implementation will be driven by agreements made through the agreed Strategic Action Programme and Baikal / Selenga Treaty. For example both countries will establish Inter-Ministerial Coordination Mechanisms (IMCM) to engage and ensure broad national support and participation in the implementation of the project, the SAP, and Treaty.

266. Regular meetings of the NGO forum will be organized concurrent with Joint Commission meetings. This will enable the NGO community to exchange experiences and coordinate their input to the project implementation process as well as the Treaty process. Also, Business Roundtable meetings will be organized to coincide with local government workshops.

D) Social issues - impacts on beneficiaries and vulnerable groups, especially indigenous communities, women, and displaced households. Describe how the marginal groups are going to be involved in the project implementation.

267. Lands adjacent to Baikal, including the whole basin of the Lake, are part of an ethno-cultural enclosing landscape for nomads of the Mongolian world. One of the ancient economic activities, which provided the Mongolians with their vitally essential necessities was grazing stock-rearing, which remains the focus of economic life in Mongolia even today. Therefore, conservation of the ecological balance and natural biodiversity are issues strategically important for the region. The water in ideological systems of ancient oriental civilizations is one of five initial microelements or rudiments (water, timber, fire, earth, and metal). These are considered the fundamental basics of organic life. In the arid conditions of Central Asia and Mongolia the specific relation to the natural elements reflected the first legislative acts of nomad communities, thus, Tchingiz-khan's Yasa charged the death penalty for polluting water. Lake Baikal itself was traditionally considered a supremely sacred place, and people's behaviour with respect to it was strictly regulated, to such an extent that it was prohibited to settle in the immediate vicinity of this

“Sacred Sea”. The first Europeans who visited and wrote about about Baikal two-three hundred years ago mentioned that “round the whole huge Baikal lake basin... there are a lot of prayer and sacrificial sites”, and that the beginning of the Sacred Sea worship is likely “related to heathen times, that preceded the arrival of Russians, and that it is based on indigenous superstitious beliefs on spirits”.

268. The traditional methods of economy and land-use norms of indigenous peoples of Siberia and the Central Asia have been formed based on these many centuries of observations made by nomads and hunters. Sites, where this communication with natural forces was the most sufficient and the feedback effect was sensed, obtained the status of sacred objects. It is likely to expect that sacral natural objects are points of critical condition, the damaging of ecosystems in which could lead to hardly reversible consequences. It seems practical to fundamentally, scientifically study the objects honored through these popular traditions as the sites most sensitive for anthropogenic interventions.

269. The project will consider the conservation of Baikal water resources, and the sustianbale development of economic activities under an integrated approach, taking into account geographical and cultural issues. In particualr, recommendaitons on tourism will recognise the need for cultural sensitivity as well as the importance of protecting the region’s ecology.

Part IV: Analysis of Stress on Baikal / Selenga Basin Ecosystem Health/Sources of Stress and Underlying Causes.

Overall Problem: Loss of biodiversity and reduced ecosystem resilience

Sector	Stress	Source	Underlying Cause/Barriers
1. Lake Baikal Water Quality	<ul style="list-style-type: none"> • <i>Warming water temperatures</i> • <i>Coastal erosion and submersion of delta marshes</i> • <i>Rise in suspended solids along coastlines</i> 	<ul style="list-style-type: none"> • Climate variability • Rising lake levels • Poor sanitation, erosion 	<ul style="list-style-type: none"> • Global CO2 emissions • Irkutsk hydropower station flow regime on Angara River • Lack of public funding for improved sanitation, lack of enforcement of sanitation measures, pulp and paper mill wastewater releases
2. Baikal / Selenga Tributary River Water Quality	<ul style="list-style-type: none"> • <i>Deteriorating water quality and elevated suspended solids and pollution levels</i> • <i>Mercury releases and stream bed degradation</i> • <i>780 streams, 590 lakes and tens of mineral springs dried up 2003- 2005</i> 	<ul style="list-style-type: none"> • Pollution from industrial and municipal sources • Artesian gold mining • Climate variability and unsustainable uses 	<ul style="list-style-type: none"> • Insufficient private and public investment in sanitation causing deteriorating condition of water works plus weak enforcement of pollution laws and conflicting water resource authorities • Low economic opportunities pushing citizens to try small scale unregistered alluvial gold mining • Global CO2 emissions and poorly regulated water abstraction practices
3. Selenga Basin Groundwater	<ul style="list-style-type: none"> • <i>Localized increases in chemical and nutrient pollution</i> 	<ul style="list-style-type: none"> • Insufficient centralized sanitation systems and poorly designed private systems • Poor understanding of groundwater pollution sources 	<ul style="list-style-type: none"> • Lack of public and private funding plus lack of public awareness and uneven and weak enforcement of pollution discharge laws • Lack of groundwater monitoring
4. Fisheries	<ul style="list-style-type: none"> • <i>Loss of Grayling, Lenok and Taimen populations in lower Selenga region</i> 	<ul style="list-style-type: none"> • Reduction in food sources (stoneflies and mayflies etc) from river bed disturbance and high suspended solids from especially alluvial gold mining • Degradation of spawning grounds from alluvial gold mining, industrial water pollution, cattle grazing in stream beds • Drastically reduced numbers of adult fish due to overfishing and illegal catch 	<ul style="list-style-type: none"> • Weak enforcement of pollution, conservation and fishing laws • Weak oversight of mining and timbering operations, even within protected areas • Lack of awareness of economic advantages to healthy and well-managed migratory fisheries, in terms of commercial catch and tourism opportunities.
	<ul style="list-style-type: none"> • <i>Reduction in Omul and Sturgeon populations</i> 	<ul style="list-style-type: none"> • Over fishing and illegal fishing 	<ul style="list-style-type: none"> • Lack of enforcement and ineffectual stocking programs

Sector	Stress	Source	Underlying Cause/Barriers
	<ul style="list-style-type: none"> • <i>Rise in invasive species (Rotan, amur Carp, amur catfish)</i> 	<ul style="list-style-type: none"> • Weakened indigenous fisheries • Past releases of alien species for improved fish catching opportunities. 	<ul style="list-style-type: none"> • Pollution and overfishing • Lack of understanding of risks from release of non-native fish
5. Other Aquatic flora and fauna	<ul style="list-style-type: none"> • <i>Reduction in zoobenthos in Baikal coastal areas and delta</i> 	<ul style="list-style-type: none"> • Oxygen depletion 	<ul style="list-style-type: none"> • rapid spread of Canadian Elodea (aquatic vegetation)
	<ul style="list-style-type: none"> • <i>Reductions in NERPA (freshwater seal) populations</i> 	<ul style="list-style-type: none"> • High toxicity levels, plus habitat disturbance and illegal poaching 	<ul style="list-style-type: none"> • Pollution plus weak enforcement of species protection and
6. Basin Forests	<ul style="list-style-type: none"> • <i>Forest fires</i> • <i>Illegal timber removal</i> • <i>Stunting and death of especially coniferous trees – pine, fir, spruces</i> 	<ul style="list-style-type: none"> • Warming temperatures and drought • Increased urbanization • Increased acidification of rain water 	<ul style="list-style-type: none"> • Breakdown in Mongolian forestry service • Lack of enforcement against illegal logging • Increased air pollution, especially during winter conditions
7. Basin Grasslands	• <i>Depletion of grasslands & rise of unedible vegetation</i>	• poor livestock management & expanded numbers	• economic opportunity and lack of understanding on overgrazing consequences
8. Basin Agriculture	• <i>Reduced health of cattle</i>	<ul style="list-style-type: none"> • Overgrowth of alkaloid species • Drought • Expanded livestock numbers 	<ul style="list-style-type: none"> • Decline in dry agriculture practices • —
9. Human Health	<ul style="list-style-type: none"> • <i>Elevated levels of viral Hepatitis A (VHA) in Baikal Basin</i> • <i>Anthrax poisoning in two areas of Buryatia</i> 	<ul style="list-style-type: none"> • Tainted decentralized sources of drinking water • • Exposure to anthrax from decaying livestock carcasses 	<ul style="list-style-type: none"> • Localized groundwater contamination from poor sanitation • Insufficient public water supply systems (only 10% of population served) • Poor disposal system for dead livestock
10. Social / Economic Quality of Life	<ul style="list-style-type: none"> • <i>Population loss</i> • <i>High poverty ratios</i> 	<ul style="list-style-type: none"> • Outmigration and natural loss • Lack of economic opportunities 	<ul style="list-style-type: none"> • Low level of development of social and economic infrastructure

Part V: GEF SO-2 Tracking Tool

I. PROJECT GENERAL INFORMATION

1. Project Name: Baikal Integrated Natural Resources Management Project
2. Project Type (MSP/FSP): FSP
3. Project ID (GEF): 4029
4. Project ID (IA): 4347
5. Implementing Agency: UNDP
6. Country: Russian Federation

Name of reviewers completing tracking tool and completion dates:

	Name	Title	Agency
Work Program Inclusion	Alexander Shekhovtsov	Lead Author of the National Report on Biodiversity Conservation in Russia; Lead expert of the national interagency Baikal Committee under the Ministry of natural resources and environment of Russia	Ministry of natural resources and environment of Russia (expert)
Project Mid-term			
Final Evaluation/project completion			

7.

Project duration: **Planned** ____ 4 ____ years **Actual** _____ years

8. Lead Project Executing Agency (ies): UNDP and Federal --

9. GEF Strategic Program:

- ☒ X Strengthening the policy/regulatory framework for mainstreaming biodiversity (SP4)
- ☐ Fostering markets for biodiversity goods and services (SP 5)

10. Production sectors and/or ecosystem services directly targeted by project:

10. a. 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.

Mining_____P

Tourism_____P__

Other (please specify)_____

II. Project Landscape/Seascape Coverage

11. a. 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? An example is provided in the table below.

Targets and Timeframe	Foreseen at project start	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
Project Coverage			
Landscape/seascape¹³ area <u>directly</u>¹⁴ covered by the project (ha)	6,407,790 ha (Ider and Egiin) + 4,640,000 ha Tugnuy-Sukhara Total: 11,047,790	TBD hectares	TBD hectares
Landscape/seascape area <u>indirectly</u>¹⁵ covered by the project (ha)	50 million ha (area of Baikal Basin)		

Explanation for indirect coverage numbers:

The project area is defined by the transboundary Lake Baikal Basin, which is over fifty million hectares in size and project inputs will affect indirectly this area, including the SAP and the TDA and strengthened transboundary management of this area. The 50 million ha figure includes Lake Baikal itself, the Selenga River Basin and other smaller basins of the smaller tributaries to Lake Baikal.

¹³ For projects working in seascapes (large marine ecosystems, fisheries etc.) please provide coverage figures and include explanatory text as necessary if reporting in hectares is not applicable or feasible.

¹⁴ Direct coverage refers to the area that is targeted by the project's site intervention. For example, a project may be mainstreaming biodiversity into floodplain management in a pilot area of 1,000 hectares that is part of a much larger floodplain of 10,000 hectares.

¹⁵ Using the example in footnote 5 above, the same project may, for example, "indirectly" cover or influence the remaining 9,000 hectares of the floodplain through promoting learning exchanges and training at the project site as part of an awareness raising and capacity building strategy for the rest of the floodplain. Please explain the basis for extrapolation of indirect coverage when completing this part of the table.

11. b. 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.

Protected areas in the Baikal Basin.

Name of PA	District, Aimak	IUCN national category of PA	Area, ha
Baikal-Lena	Olkhonsky, Kachugsky	I	659,919
Baikal (biosphere)	Kabansky, Selenginsky, Djidinsky	I	165,724
Barguzin (biosphere)	Severobaikalsky	I	262,200
Bogdkhan uul (biosphere)	Tov. (Central)	I	41,651
Dzherginsky	Kurumkansky	I	238,100
Sokhondinsky (biosphere)	Krasnochikoisky, Kyrinsky, Uletovsky	I	211,000
Khan Khanti	Tov. Khentyi	I	1,227,074
Khoridol Sar'dag	Khabsgep	I	188,634
Lake Khovsgol National Park	Khovsgol Aimag	III	838,000
Noen Handhai	Arkhangai	IV	59,088
Zabaikalsky	Republic of Buryatia Barguzinsky	III	256,000 (269,000)
Pribaikalsky	Irkutsk Province- Olkhonsky, Irkutsky, Sludyansky	IV	447,900
Tunkinsky	Republic of Buryatia	IV	1,183,662
Terelzh	Tov	IV	293,168
Khevsgep	Khevsgep	IV	838,070
Khangain Nuruu	Arkhangai, Ovorkhangai, Bayankhongor	IV	888,455
Khorgo	Arkhangai	IV	77,267
Khustain Nuruu	Tov	IV	50,620
Tarvagatai Nuruu	Arkhangai , Zavkhan	IV	525,440

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

No.

III. Management Practices Applied

12.a. 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 fisher folk 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 used (NA if none applied)	Area of coverage foreseen at start of project	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
1. Integration of biodiversity management and ecosystem resilience objectives into watershed management planning in three sub-basins within the Baikal Basin.	NA	6,000,000 ha + exact figure coming.		
2. Integration of biodiversity management objectives into each stage of the mining project lifecycle by mining companies (inside the fence) and by mining regulators.	NA	5,000 ha	-- hectares	--- hectares
3. Integration of biodiversity management objectives into tourism management, particularly sport fishing tourism.		500 river kilometers or 15,000 ha (assuming 300 m width)		

IV. Market Transformation

NA

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: 14a, 14b, 14c.

14.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.

Sector	Mining	Tourism	Fisheries	Forestry	Other (please specify)
Statement: Please answer YES or NO for each sector that is a focus of the project.					
Biodiversity considerations are mentioned in sector policy	No	No			
Biodiversity considerations are mentioned in sector policy through specific legislation	No	No			
Biodiversity-oriented regulations are in place to implement the legislation	No	No			
The regulations are under implementation	No	No			
The implementation of regulations is enforced	No	No			
Enforcement of regulations is monitored	No	No			

14.b. Please complete this table at **the project mid-term 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.

Sector	Mining	Tourism	Fisheries	Forestry	Other (please specify)
Statement: Please answer YES or NO for each sector that is a					

focus of the project.					
Biodiversity considerations are mentioned in sector policy					
Biodiversity considerations are mentioned in sector policy through specific legislation					
Biodiversity-oriented regulations are in place to implement the legislation					
The regulations are under implementation					
The implementation of regulations is enforced					
Enforcement of regulations is monitored					

14. c. Please complete this table at **project closure 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.

Sector	Mining	Tourism	Fisheries	Forestry	Other (please specify)
Statement: Please answer YES or NO for each sector that is a focus of the project.					
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 this question at the project mid-term evaluation and at the final evaluation, if relevant:

14. 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

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

Part VI: 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

Environmental Aspect	Coverage under State Expert Review	Coverage under State Environmental Expert Review
		<ul style="list-style-type: none"> - thoroughness of identified scale of the forecast environmental impact - sufficiency of envisaged environmental protection and ecological safety measures - other issues, if required

Part VII: Co-financing plan by outcomes, outputs, co-financiers with description and status.

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Output</i>	<i>Amount (US\$)</i>	<i>Description</i>	<i>Status</i>
Outcome 1 Strategic policy and planning framework						
Ministry of Environment Mongolia	National government	In-kind	Output 1.1-1.5	450 000	Contribution to the Strategic Policy and Planning framework for the integrated water resource management in the Baikal Basin with a focus on Selenga River Basin.	confirmed
Ministry of natural resources Buryat Republic	Regional government	In-kind/cash	1.3, 1.4	193 548	Assessment of the impact of trans-boundary transfer of pollutant, developing procedures for regulating relations with neighboring territories and activities to reduce its impact on the environment	confirmed
Federal service for consumer rights and human welfare - Buriat branch	National government	In-kind/cash	1.1	26 353	Information and analytical support. Development and application of geo-information systems.	confirmed
			1.2	278 259	Assessment of the impact of trans-boundary pollution of Selenga River basin on health of the population. Laboratory research.	confirmed
			1.4	110 263	Assessment of pollution hot spots in Lake Baikal's trans-boundary basin. Analysis of health and disease control situation. Assessment of the impact of trans-boundary pollution of Selenga River basin on health of the population.	confirmed
Roshydromet Buryat Republic	National government	In-kind/cash	1.1	967 769	Trans-boundary diagnostic analysis of threats to Lake Baikal system	confirmed
			1.2	132 903	Research of Selenga River delta habitat and water quality issues, including toxic pollutants, biogenic substances, river flow rate, precipitation levels and benthos conditions	confirmed
			1.4	251 986	Evaluation of hot spots in Lake Baikal's trans-boundary basin	confirmed

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Output</i>	<i>Amount (US\$)</i>	<i>Description</i>	<i>Status</i>
UNESCO	International organization	Cash	1.3	175 000	Integrated surface and ground water management	confirmed
			1.4	70 000	Kharaa river water basin pollution assessment	confirmed
Baikal Institute for nature Use	Academic institute, Russian Academy of Science	In-kind/cash	1.1	980 645	Trans-boundary diagnostic analysis of threats to Lake Baikal system	confirmed
			1.2	490 323	Research of Selenga River delta habitat and water quality issues, including toxic pollutants, biogenic substances, river flow rate, precipitation levels and benthos conditions	confirmed
			1.3	541 935	Assessment of the interaction of surface and ground water and pollution threats in Lake Baikal basin	confirmed
			1.4	154 839	Assessment of pollution hot spots in Lake Baikal's trans-boundary basin	confirmed
			1.5	748 387	Development of a joint Russia-Mongolia strategic action plan for preserving the ecosystem of the basin	confirmed
			1.6	800 000	Development of biodiversity conservation standards for tourism, mining, forestry, fisheries and livestock management standards, based on EIA rules, and their integration in the strategic action plan, regional development plans and at local level to reduce biodiversity risks	confirmed
			1.7	477 419	Watershed management (Irkutsk region – Polustnaya River, Buryatia— Selenga River, Zabaikalsky area – Khilok River, Mongolia — Selenge River) to manage biodiversity and preserve their ecosystems	confirmed
Lake Baikal Federal Water	National Government	In-kind/cash	1.1	1 032 258	Transboundary diagnostic analysis in 2011 -2013.	confirmed

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Output</i>	<i>Amount (US\$)</i>	<i>Description</i>	<i>Status</i>
Resources Agency			1.4	11 496 774	Clearing Selenga River in the city limits of Ulan-Ude, the Republik of Buryatia (Stepnaya Channel). Selenga River bank protection in Kabansk village of Kabansk district of the Republic of Buryatia, including design works in 2011. Lake Baikal bank protection near Maksimikha village of Barguzin district of the Republic of Buryatia, including design works in 2011. Lake Baikal bank protection near Oimur village of Kabansk district of the Republic of Buryatia, including design works in 2011. Kyakhtinka River bank protection in the city limits of Kyakhta, the Republic of Buryatia, including design works in 2011.	confirmed
			1.5	419 355	Development of a joint Russia-Mongolia strategic action plan for preserving the ecosystem of the basin	confirmed
Buriat State University		In-kind/cash	1.6	448 065	Development of biodiversity conservation standards for tourism, mining, forestry, fisheries and livestock management standards, based on EIA rules, and their integration in the strategic action plan, regional development plans and at local level to reduce biodiversity risks	confirmed
Federal fishery agency - Baikal branch	National Government	In-kind/cash	1.2	416 774	Research of Selenga River delta habitat and water quality issues, including toxic pollutants, biogenic substances, river flow rate, precipitation levels and benthos conditions. Research of communities and monitoring of aquatic bioresources of Selenge River	confirmed
			1.7	206 452	Management of watersheds (Irkutsk region – Polustnaya River, Buryatia— Selenge River, Zabaikalsky area – Khilok River, Mongolia — Selenge River) to manage biodiversity and preserve their ecosystems	confirmed
Subtotal 1				20 869 307		
Outcome 2 Institutional Strengthening for IWRM						

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Output</i>	<i>Amount (US\$)</i>	<i>Description</i>	<i>Status</i>
Ministry of natural resources Buryat Republic	Regional Government	In-kind/cash	2.4	200 678	Watershed management (Irkutsk region – Polustnaya River, Buryatia— Selenge River, Zabaikalsky area – Khilok River, Mongolia — Selenge River) to manage biodiversity and preserve their ecosystems. Specific activities: Opening a gauging station at Turka village or Sukhaya village for regular monitoring of Baikal Lake water levels Developing of a joint program for controlling Baikal Lake basin water quality and upgrading monitoring stations Specific activity: Developing proposals and evaluating possible changes when minimum and maximum Baikal Lake water level marks are breached	confirmed
Federal service for consumer rights and human welfare - Buriat branch	National Government	In-kind/cash	2.2	8 459	Coordination of joint international activities for the development of activities in the strategic action plan, regional development plans	confirmed
			2.4	5 179 578	Background for laboratory research. Laboratory and technology basis for disease control monitoring (Ulan-Ude, Kyakhta, Zakamensk districts)	confirmed
Roshydromet Buryat Republic	National Government	In-kind/Cash	2.1	251 041	Joint Russia-Mongolia committee for Lake Baikal and Selenga River basins	confirmed
			2.4	601 448	Developing of a joint program for controlling Baikal Lake basin water quality and upgrading monitoring stations. Assessment of ecological carrying capacity of the basin in Russia.	confirmed
UNESCO	International organization	Cash	2.3.	70 000	Training on water	confirmed

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Output</i>	<i>Amount (US\$)</i>	<i>Description</i>	<i>Status</i>
Baikal Institute for nature Use	Academic institute, Russian Academy of Science	In-kind/Cash	2.3	129 032	A program for training biodiversity and environmental protection specialists in the following areas: a) integrated basin management planning; b) geo-information systems; c) EIA and industrial site inspections; d) avoidance and containment of invasive species; e) environmental monitoring system design and management; f) enforcement of water quality and biodiversity regulations	confirmed
			2.4	400 000	Developing of a joint program for controlling Baikal Lake basin water quality and upgrading monitoring stations. Assessment of ecological carrying capacity of the basin in Russia.	confirmed
Buriat State University		In-kind/Cash	2.3	1 465 806	A program for training biodiversity and environmental protection specialists in the following areas: a) integrated basin management planning; b) geo-information systems; c) EIA and industrial site inspections; d) avoidance and containment of invasive species; e) environmental monitoring system design and management; f) enforcement of water quality and biodiversity regulations	confirmed
Subtotal 2				8 306 042		
Outcome 3 Demonstrating technologies for water quality and biodiversity main-streaming						
Ministry of natural resources Buryat Republic	Regional Government	Cash	3.1.	7 234 839	Pilot projects to conserve biodiversity with mining Specific activities: Liquidating negative impact of coal mining on the environment of Kholbodginsky strip mine – rehabilitation of contaminated land, protection of surface and ground water	confirmed
			3.2	1 274 194	Resolving strategic issues of disinfection and liquidation of livestock burial sites to prevent recurring anthrax outbreaks Activities: Design and construction of standard livestock burial sites (38 sites); Design and refurbishment of livestock burial sites (15 sites)	confirmed

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Output</i>	<i>Amount (US\$)</i>	<i>Description</i>	<i>Status</i>
			3.4.	118 065	Supporting relations of Baikal information center with NGOs, business and industry	confirmed
Roshydromet Buryat Republic	National Government	In-kind/Cash	3.3	235 264	Planning tourism activities with simultaneous biodiversity conservation practices	confirmed
Baikal Institute for nature Use	Academic institute, Russian Academy of Science	Cash	3.1	774 194	Pilot projects to conserve biodiversity with mining. Selecting three sites for development of a water biodiversity management strategy, prevention and reduction of pollution risks of water bodies and sediments during mining	confirmed
Foundation for the protection of Lake Baikal	NGO	Cash	3.1	1 935 484	Pilot projects to conserve biodiversity in mining operations	confirmed
			3.3	1 451 613	Planning tourism activities with simultaneous biodiversity conservation practices	confirmed
UNDP/Coca Cola Every Drop Matters Partnership	UNDP/Private sector	Cash	3.3	270 000	Support to local tourism development activities and measures to reduce pollution from tourism. Support to local environmental awareness among tourists, local tour operators and media.	confirmed
Buriat State University		Cash	3.3	380 968	Planning tourism activities with simultaneous biodiversity conservation practices.	confirmed
Dept-t for veterinary control Buryat republic	National Government	Cash	3.2	548 161	Resolving strategic issues of disinfection and liquidation of livestock burial sites to prevent recurring anthrax outbreaks	confirmed
Subtotal 3				14 222 782		
Management						
Ministry of Environment Mongolia	National government	In-kind		50 000		confirmed
Ministry of natural resources Buryat Republic	Regional Government	In-kind		4 097 135		confirmed

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Output</i>	<i>Amount (US\$)</i>	<i>Description</i>	<i>Status</i>
Lake Baikal Federal Water Resources Agency	National Government	In-kind		1 712 903		confirmed
UNDP/Coca Cola Every Drop Matters Partnership	UNDP/Private Sector	Cash		30 000		confirmed
Management Total				5 890 038		
Total Co-financing				49 288 169		

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Country: Russian Federation, Mongolia

UNDAF Outcome (s)/Indicator (s): *Link to UNDAF Outcome. If no UNDAF leave blank.*

CPAP Outcome (s)/Indicator (s):

CPAP Output (s)/Indicator (s):

Executing Entity/Implementing Partner:

United Nations Office for Project Services (UNOPS)

Implementing entity/Responsible Partner

MNRE – Russia; MNET – Mongolia

Programme Period:	_____	Total resources required:	53,186,169
Atlas Award ID:	___00060850___	Total Cost to the GEF Trust Fund:	3,898,000
Project ID:	___4029___	Cash contributions:	
PIMS #	___4347___	Foundation for the Protection	
Start date:	___Feb 2011___	of Lake Baikal	3,387,097
End Date	___Dec 2014___	Coca-Cola	300,000
Management Arrangements	Agency Execution	UNESCO	315,000
PAC Meeting Date	_____	In-kind contributions:	
		National Governments	15,161,290
		Regional Governments	30,124,782

Agreed by (Government):

NAME

SIGNATURE

Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

NAME

SIGNATURE

Date/Month/Year

Agreed by (UNDP):

NAME