Report on the state of conservation at the UNESCO World Heritage Site at Lake Baikal (Russian Federation, № 754) in the year 2016

1. The Russian Federation's response to the World Heritage Committee, #40 COM 7V.97

On Forest Fires: In 2015, there were 105 separate wildfires reported within the 5national nature reserves, 4 national parks, and 4 federal wildlife preserves located in the Baikal region. Some 153,000 hectares were affected by these fires, notably in the:

- Baikalo-Lensky Nature Reserve - 92.1 thousand hectares.
- Pribaikalsky National Park - 34.42 thousand hectares.
- Zabaikalsky National Park - 15.1 thousand hectares.

A Special Federal Inspectorate is responsible for the oversight of our nature reserves and national parks. The employees of this national agency are actively engaged in the protection of the natural systems within these protected areas. One of their duties is to detect and extinguish wildfires. The number of specialized federal inspectors in all our nature reserves and national parks located around Lake Baikal numbers some 223 employees—or 37% of all our protected area staff.

In addition, during 2015 there were a number of other state employees engaged in fighting the forest fires here in the State of Irkutsk and the Republic of Buryatia, including: nearly 800 fire-fighters from the regional bases of our aviation forest-protection teams; another 100 members from our fire department parachute teams; and 200 employees of Russia's EMERCOM (Federal Committee for Emergency Situations).

Multiple airplanes and helicopters were also offered for use by the Russian armed forces and the Ministry of Emergency Situations. These aircraft helped us fight the forest fires in our nature reserves and national parks. In the end, the main reasons that these wildfires spread over into such larger areas were:

-A number of smaller forest fires came together to create larger conflagrations;

- The fires mostly ignited in the more remote and inaccessible mountain regions around Baikal (such as in Zabaikalsky and Pribaikalsky National Parks, and the Barguzinsky and Baikalo-Lensky Nature Reserves). This made it virtually impossible to use ground forces to put out these fires; and the use of aircraft for the most part turned out to be ineffective and economically unfeasible.

Nevertheless, in view of the fact that the fires passed over lands within the nature reserves and national parks that were mostly mountainous in nature, covered with low-lying shrubs—with fewer high-value trees or thickets that normally provide valuable habitats for wild animal species—the damage done to the larger reserve of plants and wildlife was not deemed significant.

In order to prevent a repeat situation in future years, in 2015 the following measures were taken:

- Work was done to strengthen cooperation between regional authorities, national authorities, and the fire departments responsible for fire safety in areas adjacent to our nature reserves and national parks. These measures centered on ways to prevent the spread of fires from adjacent lands onto the nature reserves and national parks;

- Thanks to support from the World Bank project entitled: "Improvements in forest management and forest fire control measures in Russia," many upgrades were made in our nature reserves and national parks, mainly by procuring modern communication facilities and better fire extinguishing equipment, as well as by installing fire-chemical stations, and developing advanced wildfire-monitoring systems, and making other improvements in our rapid decision-making and information exchange processes;

- Improvements were also made in the use of remote monitoring systems for the detection of wildfires from satellite sensors;

- Amendments to Russian legislation were made requiring that fire-fighting plans be developed and approved annually for each and every protected area.

For 2017-2018, a framework will be developed for a project called "The reform of the forest management and forest fire control measures in Russia."This project will be implemented under an agreement between the Russian Federation and the International Bank for Reconstruction and Development, and will include plans to develop an overall strategy for the protection of our protected forests from wildfires.

On the development of tourist infrastructures around Lake Baikal. This last year priority was given to the development of tourism that is either ecological or ethnographic in nature, or related to business exchanges and other special events, including lake cruises.

For this purpose, special recreational areas have been targeted in places where tourism is already established around Lake Baikal, such as in the coastal areas of Listvyanka, Bolshoye Goloustnoye, Baikalsk, Slyudyanka, Kultuk, Utulik, Olkhon Island and the Small Sea Coastline, as well as along the old Circum Baikal Railway.

One of the main conditions for developing tourism in the town of Baikalsk will be to carry out a thorough reclamation of all the accumulated industrial wastes that were left behind by the "Baikal Pulp and Paper Combine," as well as a complete rehabilitation of the industrial area around the factory site.

The promotion of tourism and the development of our recreational areas around Baikal are also associated with improvements in our scientific research and environmentally friendly technologies. The uniqueness of Lake Baikal will continue to spur the interest of leading scientists and researchers from around the world, aiding the prospects for regional growth of scientific-educational and ecological tourism. As one example, in Baikalsk there are plans to establish an International Clean Water Center.

The main strategies for developing tourism in the region are:

- The provision of advanced energy and transportation systems, including improved road infrastructures for our most popular recreational areas;

- The development of water-based tours and special cruise routes, and the reconstruction or new construction of ports and other berthing facilities;

- The modernization of airports, and construction of new landing sites;

- The development and further upgrades in other existing tourism infrastructures;

- The creation of a comfortable and affordable tourism environment, as well as improvements in the quality of tourism services;

- The formation of a positive tourism image for the region.

On the development of tourism infrastructures in the special economic recreational zone known as the Gates of Baikal (Irkutsk region).This Special Economic Zone (SEZ) was created by the Russian Government in 2007 to cover an operational period of some 49 years. The first phase of work in this SEZ was implemented at the "Sable Mountain" site in the Slyudyanka district of Irkutsk (land area = 756.97 ha).

At present, work is being completed on a federal assessment of the design documentation for the construction of the SEZ infrastructures here, i.e.: for electricity and water supply networks, for drainage and sanitation, heating, water intake structures, public parking lots, landscaping, etc.

On the development of tourism infrastructures in the special economic recreational zone known as the Baikal Harbor (Republic of Buryatia). The time period for this project's operation is 2007-2056. This SEZ covers five sites: "Turka," "Sands," "Bull Mountain," "Nameless Cove," "Goryachinsk," covering a total area of about 3.6 thousand hectares.

- At the "Turka" site the following have been built and put into operation: a fire station, garbage transfer station, lighthouse, leisure and educational center, boat docks, a medical center, and a series of shoreline reinforcement structures.
- At the "Sands" site, a new water supply system is now being installed.
- At the "Bull Mountain" site anew access road has been built.
- An overall site-development plan has been designed for the "Goryachinsk" and "Nameless Cove" sites, but infrastructure improvements have yet to commence.

On the current situation at the Baikal pulp and paper mill. On September 14, 2013 the Baikal Pulp and Paper Combine (further - "BPPC") ceased its production activities.

Currently, a decision has not yet been reached about the future use of the industrial area around the BPPC. After the closure of the mill, there were several major environmental challenges that arose, including: how to eliminate the waste piles and otherwise reclaim or remove the industrial sludge; how to clean up the contaminated groundwater; and how to reclaim the entire surface area of the site.

In June 2016 the regional government of Irkutsk set up a commission to survey the entire area covered by lignin sludge around the BPPC. In August 2016 the Commission released results from a series of tests using various decontamination technologies for processing the lignin sludge. And according to a toxicological analysis of various samples taken after these decontamination processes, the end product was deemed virtually benign to the environment (i.e., it belonged to the 5^{th} or lowest class of hazard to the environment, in accordance with the classification criteria of hazardous waste as established by Order № 536 of the Ministry of Natural Resources on December 4, 2014).

On the system of ecological monitoring at Lake Baikal. The Russian Government issued Decree № 85 on February 2 2015 approving protocols for state environmental monitoring of the unique ecological systems at Lake Baikal. These protocols set forth procedures for conducting all monitoring of ecological systems at Baikal.

In order to protect Lake Baikal and the surrounding land mass from negative human and technological impacts, on August 21, 2012 the Russian Government issued Decree №847, which set federal targets for the: "Protection of Lake Baikal and the socio-economic development of the Baikal region for the years 2012 – 2020."

In order to harmonize actions taken by federal authorities with those taken by regional authorities within the constituent Republic of Buryatia, and the States of Irkutsk and Trans-Baikalia, an Inter-Agency Commission for the implementation of state policy at Lake Baikal was created in the year 2008. This commission oversees measures for the protection of Lake Baikal, including measures that are meant to ensure that conditions are met to retain Baikal's status as a World Heritage Site.

Finally, in order to improve the effectiveness of all federal actions and state control over the Lake Baikal environment, in 2016 a separate Baikal Department was established within the Federal Service for the Management of Natural Resources.

On the existing regulations and rules of Lake Baikal water resources use. Existing conditions and water resources use rules and Lake Baikal water resources management were defined by the Water Code of the Russian Federation, federal laws "On Environmental Protection", "On Protection of Lake Baikal".

Water resources of Lake Baikal involved in economic activity, including the start of the Irkutsk hydroelectric station work. Irkutsk reservoir of water includes a channel part of the river Angara and Lake Baikal. On the river Angara there is the cascade of Angara hydroelectric stations: Irkutsk, Bratsk, Ust-Ilim and Boguchansk.

The modes of operation of the Angara cascade reservoirs, including Lake Baikal, are set by Yenisei Basin Water Management in accordance with the "Basic rules of use of water resources of the Angara cascade hydroelectric stations reservoirs (Irkutsk, Bratsk and Ust-Ilim)" (1988), taking into account the prevailing hydrological and water situation and hydro meteorological forecasts of Roshydromet, the provisions of the Russian Federation Government resolution "On the limit values of water level in Lake Baikal in the implementation of economic and other activities" of 26.03.2001 № 234 and taking into account the recommendations of the Interagency working group on modes regulation of the reservoirs of the Angara-Yenisei cascade and Nordic hydropower stations, Baikal water level, established by order of the Federal agency of water resources in 2004. The composition of this Interagency working group was formed of territorial authorities, federal executive authorities, executive authorities of subjects of the Russian Federation, concerned organizations.

The continued over the past three years, the extreme shortage of water in the basin of Lake Baikal has necessitated the adoption of the Government of the Russian Federation Resolution of 07.01.2016, № 626 "On the maximum and minimum values of water level in Lake Baikal in 2016 - 2017", according to which it was adopted:

- Maximum and minimum values of water level in Lake Baikal during the average water content at elevations respectively are 457 and 456 meters (Pacific Heights system);
- The minimum value of the water level in Lake Baikal during the low water content (low water period) is at the level of 455.54 meters (Pacific Heights system);
- The maximum value of water level in Lake Baikal during the high water content (high water period) is at the level of 457.85 meters (Pacific Heights System).

Currently, the regulation of the level regime of Lake Baikal is realized by taking into account the above decision.

2. Background on other current issues related to preservation of our heritage site

The Baikalsky State Nature Biosphere Reserve and the Kabansky Federal Wildlife Sanctuary. Here on the southern shores of Baikal there are several factors that adversely affect the eco-systems that lie within the boundaries of the World Heritage Site, such as:

- in the Baikalsky Nature Reserve there were unauthorized entries and other violations of reserve rules by members of the public, including the gathering of wild berries, and illegal fishing(with 6 such violations recorded in 2016);
- for the Kabansky Sanctuary: unauthorized entry by vehicles and motorboats, and various violations of fishing regulations (with 13 such violations in 2016).

Note: the number of these illegal actions decreased slightly in 2016. So far these kinds of violations have not really tended to have any major impact on our eco-systems.

In recent years we have observed a decrease of fish stocks in the Kabansky region, and generally in the larger delta of the Selenga River. There has also been deterioration of population slower on the food chain, particularly with a loss of biomass volume in crustaceans (*Gammarus lacustris*). We've also noted a reduction in fish stocks in all the smaller water ways within our Baikalsky Nature Reserve.

The danger from forest fires of anthropogenic and natural origin remains high in this area. On nature reserve lands here there have been very few economic or other human activities conducted over history. And there has been no record of recent fires in areas along the massive northern slopes of the Khamar-Daban Range (which makes up more than half of the reserve). Hence, many of the indigenous fir-pine and cedar forests here are first-growth. On the southern mountain slopes the coniferous pine and cedar forests have been partly affected by fires; but old-growth tree communities still thrive in about a half of the south-facing area of the mountains.

Throughout 2016, however, there were no forest or other vegetation fires registered within the reserve and the neighboring Kabansky Wildlife Sanctuary.

Moreover, biotic impacts from incoming air pollutants have been negligible.

The Barguzinsky State Biosphere Reserve, Zabaikalsky National Park, and the Frolihinsky National Wildlife Sanctuary. In the protected areas to the east of Baikal there are several factors adversely affecting the eco-systems that lie within the World Heritage Site, including numerous violations of established park regulations.

For the Barguzinsky Reserve –last year there were 16 instances of unauthorized entry into this protected area. For Zabaikalsky National Park there were 54 registered cases of unauthorized entry and illegal fishing within the park during 2016.Within the Frolihinsky Wildlife Sanctuary no violations were registered at all in 2016.

The number of such offenses in all of these areas, when compared with the previous year, has decreased significantly. Once again these violations have not really tended to have any major impact on these eco-systems.

Forest fires: Both natural and man-made fire remains a very serious threat for the reserve, national park, and sanctuary in this region. All three protected areas are located in a zone that is commonly exposed to "dry" thunderstorms—a common cause of forest fires. In the Barguzinsky Reserve the last case of a man-made fire was registered back in

1971.But in 2016, five separate forest fires were started by lightning. These fire outbreaks were contained to an area of 6349 hectares. There were no forest fires last year either within Zabaikalsky National Park or in the Frolihinsky Sanctuary.

Changes in aquatic ecosystems at Lake Baikal: Recent research shows that the fish stocks of different species in Lake Arangatuy and Chivyrkuy Bay (both within Zabaikalsky National Park) have continued to decrease. At the same time the overall biomass of a green filamentous algae (Spirogyra) in the shallow reaches of Chivyrkuy Bay and Davsha Bay has markedly increased.

In the opinion of the staff at the Siberian Branch of the Russian Academy of Science, these changes are the result of latent eutrophication of waters adjacent to popular recreational sites. They may also be the result of climatic and hydrological shifts during this last year. This increase in algae biomass has been accompanied by significant changes in the structure and productivity of larger coastal aquatic ecosystems—changes that can have impacts on fish populations and there-productivity of fish stocks. This issue is now being studied by the Limnological Institute and the Institute of Experimental Biology at the Buryat Scientific Center of the Russian Academy of Sciences.

- Recreation and eco-tourism. In recent years, measures have been taken towards promoting recreational tourism activity in Zabaikalsky National Park.

The impacts from tourism in the park can often be very uneven—not only because it is seasonal, but also in a geographic sense. The greatest impacts have been uncovered in the Chivyrkuy and Barguzin Bays, and the Karga region. At the same time there are very remote areas of difficult access that exhibit no real recreational overload.

To minimize impact on our ecosystems, we envision improvements in appropriate infrastructures.

There are four main, fully equipped and popular tourist trails within the national park, each with their own name: "The Path to Pure Baikal", "The Trail of Trials," "On to Snake Bay" and the “Ushkanyi Islands Eco-Trail.” These are part of a larger Great Baikal Trail (GBT) system, and serve as a foundation for the majority of tourist programs and tour itineraries here. This last year the Great Baikal Trail Association led 3 volunteer teams that scoped out and constructed ecological trails in these regional protected areas, including the "Trail of Trials," where GBT crews upgraded some 28 camping and other sites along the way.

Zabaikalsky National Park had previously built a campsite with a limited number of reserved spots, each with camp-fire rings and waste collection points nearby. This was part of an organized effort at regulating visitor camping, through which the park can accommodate up to 60 tourists without compromising the surrounding environment. With the success of this first site at Sorozha Bay, in 2016 a new camping area was constructed at Monakhovo, using the same principles to serve another 100 campers.

In addition, the national park here also is able provide private guest houses, yurt camps, and a floating hotel on the lake to accommodate visitors.

The Barguzinsky National Biosphere Reserve is much more inaccessible; and with its well-functioning system of protection, it does not experience many significant

anthropogenic pressures from tourism or other activities. Last year visitation to this reserve amounted to about 1,000 people, most of whom were interested in the culture and history of the region. The average number of visitors over the past 5 years has been closer to 500 people. The vast number of tourists visiting the Barguzinsky Reserve, travels in organized groups. This Reserve has developed two fully equipped eco-trails that cover a total length of 20 km.

In the small village of Davsha a Nature Reserve Museum has been operating since 1953. With its short tourist season here (June-September), this museum is open to visitors over a very limited period of time. In Davsha itself there have been efforts recently to develop and improve local guest houses. The reserve has also remodeled an old stable and created a special "Sable Visitor Center", where exhibits are on display depicting the famous Barguzin sableand the history of its protection in the reserve.

Meanwhile, in the Frolihinsky Wildlife Sanctuary the main recreational destination is Lake Frolikha. Recently a new hiking trail was built to connect this lake to Aya Bay on Baikal. The visitation to this wildlife area is still modest—mainly because of its inaccessibility—numbering no more than 1,000 visitors per year.

In 2016 the long term monitoring of the flora and fauna continued without interruption in the Barguzinsky Reserve. It did not reveal any trends showing human impacts to the region: all the observed natural processes remained dynamic and cyclical. The human impacts last year at popular tourist sites (including recreational areas, eco-trails, and waste collection sites) did not exceed the permissible recreational loads, and show no sign of irreversibly destructive processes.

The Baikalo-Lensky National Nature Reserve, Pribaikalsky National Park, and the Tofalarsky and Krasny Yar Wildlife Sanctuaries. This last year the rangers and inspectors working in these areas (that are also part of the World Heritage Site)uncovered some 279 violations of park regulations, including 234 unauthorized entries, 22 violations of fire safety rules, and 14 cases of poaching for animals.

In 2016 the Baikalo-Lensky Reserve experienced 15 forest fires (covering6398 ha); and in Pribaikalsky National Park there were9 fires (covering 150 ha in all).

Last year in each protected area, special research was carried out to:

- Study all natural processes, and identify relationships between different components of each eco-system;
- Monitor all rare and endangered species of plants and animals;
- Examine and inventory the flora and fauna of each eco-system;
- Inventory the birds that reside in the Baikalo-Lensky Reserve;
- Inventory bat populations in Pribaikalsky National Park.

Several censuses of fauna were held last year, giving us an annual count of certain animals and upland birds. A spring-time count of migrating grouse species was completed, along with a spring and summer census of brown bears. In the fall rutting season the number of elks was calculated, along with several small mammal species. Amore comprehensive accounting of birds was taken both during the breeding period and in the winter months. Finally, careful estimates on the range and abundance of zooplankton in the many lakes of the region were also made.

In all of these protected areas to the west of Baikal there are now 34 established eco-trails—including new trails built last year near Grandmother Bay, as well as the new "Hunting Cave" and "Dry Lake" trails. The number of registered visitors to the Baikalo-Lensky Reserve in 2016 amounted to only 247 people. But Pribaikalsky National Park had32,077 visitors.

Last year a new International Youth Forum called "Baikal-2020" was organized, along with environmental festivals called "Eco-Kids" and the "Mirror of Baikal." Special ecological holidays were held, such "Daysof Baikal", "Earth Day", and the "Days for Protecting the Environment." Three local schools held special Olympiads for testing students' knowledge of Baikal. And several scientific conferences were held on subjects related to "The best means of research," "Baikal trails," and "Nature research."

Tunkinsky National Park. This park lies near at the southwest corner of Baikal. In 2016 some 167 violations were recorded here, with 62 cases of visitors violating local fire safety rules. This last year a special winter count of all animal species was taken, along with specific censuses of waterfowl and migratory grouse. There was also a spring bear count and a separate accounting of muskrats. New recommendations and plans were put into place for the protection of several rare species of animals (mainly river otters and the alpine ibex) as well as plants (*megadenii Bardunova*), and for the conservation of their habitats within the national park. There are now 47 different byways in the park, with 7 complete eco-trails. In all, the number of visitors here in 2016 came to 159,800 people.

3. Major changes to this World Heritage Site are not projected for next year.