



Preparation of Regional Pre-Investment Studies in the Eastern Sector of the Russian Arctic

Restoration of Commercially Important Fish Species in the Subarctic and Arctic River Basins in Yakutia

Pre-Investment Study

April 5, 2010

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of the Russian Arctic**

**Final stage of consulting services provided under Contract No. CS-NPA-
Arctic-08/2008 dated August 20, 2008**

**Restoration of Commercially Important Fish Species in the
Subarctic and Arctic River Basins in Yakutia**

Pre-Investment Study

Project 0090016

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ERM Eurasia Ltd confirms that this document has been prepared with all reasonable skill, care and diligence and in conformity with the professional standards as may be expected from a competent and qualified consultant acting as Environmental Consultant having experience in providing services for projects with similar scope of work, complexity, issues and scales.

This document has been prepared in accordance with the terms of the Contract concluded with the Client and in conformity with the commonly adopted practice of environmental consulting for the purposes foreseen in the Contract.

The conclusions and recommendations made in this document are based upon information obtained directly by the ERM Eurasia Ltd, as well as information provided by third parties, which we believe to be accurate.

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SUMMARY

PROJECT NAME	Restoration of Commercially Important Fish Species in the Subarctic and Arctic River Basins in Yakutia.
PROJECT DEVELOPER AND PROPOSED BENEFICIARY	The Biological Resources Department of the Ministry of Environmental Protection of the Republic Sakha (Yakutia) and the Institute for Applied Ecology of the North of the Federal Agency for Education under the Ministry of Education and Science of the Russian Federation. The Biological Resources Department is proposed as the Project Beneficiary.
LOCATION	The Project site is located on the left bank of the Strekalovka river, near its inflow into the Lena River near Zhigansk, 765 km downstream from the capital Yakutsk, 40 km to the north of the Polar Circle, around 500 km away from the coast of the Laptev Sea
OBJECTIVES	The objectives of the Project are restoration of commercially important fish resources in the subarctic and arctic river basins in Yakutia where local fish populations were depleted by human activities; mitigation for the loss of commercially important and rare fish habitats in the arctic river basins, and implementation of advanced technologies for artificial reproduction of sturgeon, salmon and whitefish and development of aquaculture infrastructure.
PROJECT CATEGORY	Priority IV: Investment contributing to biodiversity and the sustainability of habitat and traditional resource utilisation by indigenous people.
DESCRIPTION OF THE PROJECT ACTIVITIES	<p>The Project proposes a comprehensive solution to the problem of replenishing depleted fish stocks in arctic river basins in Sakha Republic through installing both a permanent fish hatchery and portable incubation units in order to achieve maximum mitigation effect to restore commercially important fish species where their stocks were seriously depleted by human activities.</p> <p>The fish hatchery comprising pools and nursing ponds is proposed to be used for:</p> <ul style="list-style-type: none"> - reproduction of whitefish species (nelma, muksun, omul, and peled), and

	<p>- reproduction of sturgeons (Siberian sturgeon) and salmon (taimen) species. Portable incubation units are proposed to be installed at fishery sites rich in mature producers (estuaries of Natara, Muna and Motorchuna Rivers which are tributaries of the Lena River). The larvae will be released into the arctic rivers in Eastern Yakutia (catchments of Indigirka, Yana, and Kolyma) where the status of fish stocks has significantly deteriorated. The project proposes installation of seven incubatory units in three fish breeding areas.</p>
<p>TECHNOLOGIES USED</p>	<p>Reproduction of whitefish species (nelma, muksun, omul, and peled) includes the following technological processes:</p> <ul style="list-style-type: none"> • selection of areas for seining; • catching of fish for maturing in nurse ponds • transportation of producers to the fish hatchery; • short-term maturing of producers in nursing ponds or bayou lakes for a month; • testing the producers for maturing level; • collection of live fish eggs; • transportation of live fish eggs for incubation to Chernyshevsky Fish Plant (CFP); • incubation of whitefish fish eggs at CFF within 8-9 months (October-May); • transportation of whitefish larvae for growing in nursing lakes prior to release into the Lena River. <p>Reproduction of sturgeons (Siberian sturgeon) and salmon (taimen) species includes the following technological processes:</p> <ul style="list-style-type: none"> • selection of areas for seining and net fishing; • catching of fish for maturing in nurse ponds • transportation of producers to the fish hatchery • maturing of producers in nursing ponds or bayou lakes • injecting producers for maturing;

	<ul style="list-style-type: none"> • testing the producers for maturing level; • collection of live fish eggs (June-July); • incubation of taimen (1-1.5 months) and sturgeon (10 days) eggs in portable incubation units; • transportation of whitefish larvae for growing in nursing lakes prior to release into the Lena River. <p>Portable incubation units will be operated as follows: water is regularly pumped by motor pump from a water body into a tank and when it gets optimum temperature and oxygen condition it goes to filter pumps after which it undergoes UV sterilization and goes to Weiss chambers where eggs are incubated. The water is recycled. Electric equipment is powered by an inverter type gasoline generator.</p>
PROJECT PREPARATION LEVEL	<p>The Project is at the conception stage. The Terms of Reference have been prepared for the design and construction of a fish hatchery, as well as technological schemes and operational specifications for a fish hatchery and portable incubatory units.</p>
PRELIMINARY COST ESTIMATE	<p>Total cost of design and capital expenditures is estimated at 780,000 Euros.</p> <p>Total operating costs of the fish hatchery and portable incubation units are estimated at 200,000 to 220,000 Euros per year.</p>
EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS	<p>It is estimated that the proposed fish hatchery can facilitate through fish stocking production of around 1,000 tons of whitefish species annually, including:</p> <ul style="list-style-type: none"> • 600 tons of omul within 8 to 10 years, • 80 tons of muksun within 10 years, • 100 tons of nelma, and • 200 tons of peled within 12 to 14 years. <p>With regard to sturgeons and salmon fish, it is expected to produce through mobile incubation units with the capacity of 500,000 sturgeon eggs and 300,000 taimen/lenok eggs:</p> <ul style="list-style-type: none"> • in 14 to 16 years – up to 40 tons of sturgeon, • in 5 to 8 years – up to 300 tons of taimen, and

	<ul style="list-style-type: none">• in 5 to 8 years – up to 80 tons of lenok. <p>The indicators for assessing the project performance are:</p> <ul style="list-style-type: none">• conservation of gene bank and increasing population of whitefish, sturgeons and salmon in the river basins of Project implementation;• increased fish capacity of the rivers;• improvement of aquatic ecosystems and promotion of sustainable development in the arctic river basins in Yakutia.
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1 INTRODUCTION

This document has been prepared by ERM Eurasia Ltd. (ERM) in accordance with Contract on Consulting Services No. CS-NPA-Arctic-08/2008 dated 20 August 2008 with the Executive Directorate of the National Pollution Abatement Facility (NPAF) within the framework of the Project "Preparation and Implementation of Regional Pre-Investment Studies in the Eastern Sector of the Russian Arctic".

This Project is Component 2 of the Project "Russian Federation - Support for National Programme for the Protection of the Arctic Marine Environment" (The NPA-Arctic Project) and is funded by the Global Environment Facility (GEF). The Executing Agency is the Ministry of Economic Development of the Russian Federation.

The main objective of the NPA-Arctic Project is to develop and establish a sustainable framework to reduce environment degradation of the Russian Arctic from land-based activities on a systematic basis by implementation of a Strategic Action Programme (SAP), which is being developed to comply with obligations of the Russian Federation under international conventions and agreements and taking into account decisions and programmes of the Arctic Council.

The ultimate goal of this Project was to prepare pre-investment studies (PINS) on the investment proposals selected by the NPA-Project in the Eastern Sector of the Russian Arctic, i.e. in the Republic of Sakha (Yakutia) and Chukchi (Chukotka) Autonomous Okrug.

2 PROJECT DESCRIPTION

2.1 BACKGROUND AND OBJECTIVES OF THE PROJECT

The Project includes measures for restoration of commercially important fish species in the subarctic and arctic river basins in Yakutia through construction of a fish hatchery to grow autumn-spawning fish species, and installation of portable incubation units to reproduce spring and summer spawning fish for release into Lena, Yana, Indigirka and Kolyma rivers in Eastern Yakutia whose fish populations were depleted as a result of human impact (e.g. overharvesting, pollution, poaching, etc.)

The Project has the following objectives and goals:

- restoration of commercially important fish resources in the subarctic and arctic river basins in Yakutia where local fish populations were depleted by human activities;
- compensation for the loss of commercially important and rare fish habitats in the river basins, and
- implementation of advanced technologies for artificial reproduction of sturgeon, salmon and whitefish and development of aquaculture infrastructure.

2.2 HISTORY

Currently, low number of spawning stocks of all catadromous whitefish is observed in the Lena River. In particular, the populations of muksun, nelma and omul declined dramatically. While prevailing in catches some time ago, muksun and nelma are now increasingly becoming incidental catch and losing their commercial value. In recent years, as a consequence of low spawning stock, omul catch is becoming less important.

Therefore, the Lena River is becoming a vendace river as a result of the break-up of a single arctic freshwater fauna association which included all whitefish species of the Lena River. The total fish capacity of the river fell by more than half, with a lot of fish feed remaining unused.

The situation with fisheries in other arctic rivers in Yakutia is similarly serious. Fish populations in the Indigirka River decline due to overfishing and adverse mining impacts on their habitat. Major adverse impacts on the ecosystems of the Kolyma River are associated with the dam of the Srednekanskaya HPP and pollution with oil products. As a result, the Kolyma and Indigirka nelma and muksun populations are under such pressure that it is necessary to undertake measures for artificial reproduction of these species. In the Yana River basin, the quality of populations of whitefish continues to decline as a result of overfishing, number of nelma and muksun stocks

deteriorated sharply and the number of sturgeon hovers around critically low level.

2.3 DESCRIPTION OF THE FACILITY. TECHNICAL AND TECHNOLOGICAL CHARACTERIZATION. SITE LOCATION

The fish hatchery will be located in the Zhigansk settlement, an administrative centre of Zhigansky Ulus. Portable incubatory units will be installed in the estuaries of Natara, Muna and Motorchuna rivers, in Zhigansky Ulus.

The location of Zhigansk is shown in Figure 1.2.

The project includes construction of a fish hatchery to grow autumn-spawning fish species (whitefish and sturgeons) with annual capacity of 100 million fish eggs near the settlement of Zhigansk, on the Lena River, and installation of portable incubation units to reproduce spring and summer spawning fish (taimen, grayling, lenok, etc.) for release into Lena, Yana, Indigirka and Kolyma.

The Project site is located on the left bank of the Strekalovka river, near its inflow into the Lena River near Zhigansk, 765 km downstream from the capital Yakutsk, 40 km to the north of the Polar Circle, around 500 km away from the coast of the Laptev Sea.

Preliminary layout of the site is shown in Figure 1.2.

2.4 OVERVIEW OF THE RISK ASSESSMENT AND ACCIDENT RISK PROBABILITY

Risk assessment and analysis will be performed in the process of development of technical projects of a fish hatchery and portable incubatory units.

2.5 PRIORITY CATEGORY FOR THE NPA-ARCTIC PROJECT

Priority IV: Investment contributing to biodiversity and the sustainability of habitat and traditional resource utilisation by indigenous people.

2.6 APPLICABLE NATIONAL AND INTERNATIONAL REGULATIONS AND STANDARDS

2.6.1 Federal laws of the Russian Federation

- Federal Law No 166-FZ dated 20.12.04 “On Fishing and Conservation of Aquatic Biological Resources” (as amended on 03.12.08 No 250-FZ);
- Federal Law No 5151-1 dated 10.06.93 “On Certification of Products and Services”
- Federal Law No 184-FZ dated 27.12.02 “On Technical Regulations”;

- Federal Law No 73-FZ dated 03.06.06 “Water Code of the Russian Federation”;
- Federal Law No 136-FZ dated 25.10.01 “Land Code of the Russian Federation”;
- Federal Law No 190-FZ dated 29.12.04 “City Planning Code of the Russian Federation”;
- Federal Law No 174-FZ dated 23.11.95 “On State Environmental Review”;
- Federal Law No 52-FZ dated 24.04.95 “On Fauna”;
- Federal Law No 49-FZ dated 07.05.01 “On Areas of Traditional Use of Natural Resources of Small Indigenous People of the North, Siberia and Far East of the Russian Federation”;
- Federal Law No 82-FZ dated 30.04.99 “On Guarantees of Rights of Small Indigenous People of the Russian Federation”.

2.6.2 Decrees of the Russian Government

- Decree No 606 dated August 12, 2008 “On Federal Target Programme “Improving Efficiency of Use and Developing Potential of Fisheries System in 2009-2013””;
- Decree No 1017 dated December 24, 2008 “On production (catch) of commercially important and endangered aquatic species”;
- Decree No 887 dated November 26, 2008 “On Approval of rules for distribution of catch quotas of aquatic biological resources for scientific and monitoring purposes, for learning and cultural and instructional purposes and for purposes of fish breeding, reproduction and acclimatization of aquatic biological resources”;
- Decree No 765 dated October 15, 2008 “On Procedure for preparation and decision-making on provision of aquatic biological resources classified as fishery objects for use” (rules for preparation and decision-making on provision of aquatic biological resources classified as fishery objects for use);
- Decree No 743 dated October 6, 2008 “On Approval of Rules for establishing fishery conservation zones”
- Decree No 625 dated August 18, 2008 “On Identification of amount of damage, which is inflicted to aquatic biological resources and which should be considered large”;

- Decree No 601 dated August 12, 2008 “On State Fishery Register”;
- Decree No 484 dated June 28, 2008 “On Procedure for Development and Approval of Water Quality of water bodies of fishery value, including norms of allowance maximum allowable concentrations of harmful substances in water of water objects of fishery value”;
- Decree No 1000 dated December 29, 2007 “On Provision in 2008-2010 subsidies from the federal budgets to budgets of constituent entities of the Russian Federation to reimburse to organizations engaged in industrial fishing regardless of their forms of incorporation, part of expenses on interest rate payments on investment credits received in 2007-2009 to acquire fish tribal material, machinery and equipment for industrial fish breeding for a period of up to 5 years for construction, restructuring and upgrade of complexes (farms) to perform industrial fish breeding for a period of 8 years”;
- Decree No 967 dated September 26, 1995 “On Approval of Statute on Licensing Industrial Fishery and fish breeding”;
- Decree No 87 dated February 16, 2008 “On composition of sections of design documentation and requirements for their contents”;
- Decree No 145 dated March 5, 2007 “On Procedure for Organization and Conduct of State Expertise of design documentation and results of engineering studies”;
- Decree No 20 dated January 19, 2006 “On Engineering Studies for preparation of design documentation, Construction, restructuring of capital construction objects”;
- Decree No 45 dated January 26, 2005 “On Organization of licensing of certain types of activities”;
- Decree No 140 dated February 23, 1994 “On Land Rehabilitation, Removal, Preservation and Rational Use of fertile soil layer”;

2.6.3 Key regulatory documents

- Order of the Natural Resources Ministry 107 dated April 28, 2008 “On Approval of Methodology for calculation of amount of penalty for damage caused to fauna objects included in the Red Book and other fauna objects not classified as hunting and fishing objects and their habitat”;
- Order of State Committee for the Russian Federation for Fishery 38 dated March 6, 1995 “On Approval of Instructions on the procedures for recording fish products, produced by organizations of the Russian Federation to natural water bodies and water dam lakes”;

- Order of State committee of the Russian Federation 137 dated May 15, 2001 “On Approval of list of activities, related to industrial fishing and fish breeding subject to licensing”;
- Sanitary norms and rules SNiP 11-02-96. Engineering studies for construction. Fundamentals;
- Sanitary rules SP 11-102-97 Engineering and ecological studies for construction;
- Sanitary rules SP 2.2.1.1312-03 Health requirements for design of newly built and restructured industrial enterprises;
- Sanitary norms and rules SNiP 2.1.5.980-00 Water disposal from population aggregates, sanitary protection of water bodies. Health requirements for preservation of surface waters;

2.7 ANALYSIS OF ALTERNATIVES TO THE PROJECT

Options for the site location

Along with the site located on the Strekalovka River, an option was also considered to establish a fish hatchery on the Lena River near Arylakh, Kobyaysky Ulus, where omul can be matured in shorter term and there are water bodies suitable for building channel ponds using bayou lakes. The difficulty is related to poor catch. While there is sufficient amount of omul in the river, capable of ensuring some 50 million eggs, efficient seining has not yet been achieved in this area. When using net fishing, producers are injured and die when they are left to mature in nursing ponds.

2.8 CURRENT STATUS OF THE SITE AND PROJECT PREPARATION LEVEL

The Project is at the conception stage. The Terms of Reference have been prepared for the design and construction of a fish hatchery, as well as technological schemes and operational specifications for a fish hatchery and portable incubatory units.

The Biological Resources Department of the Environmental Ministry of the Republic of Sakha (Yakutia) has developed a document (project intention) entitled “A fish hatchery for commercially important fish species near Zhigansk”.

The Water Ecology Laboratory under the federal state scientific organization Institute for Applied Ecology of the North has developed a document (project intention) entitled “Portable incubation units for artificial reproduction of spring and summer spawning fish”.

2.9 *PROPOSED MEASURES*

The problem of rebuilding of depleted fish stocks in arctic river basins in Sakha Republic should be addressed using comprehensive methods by installing both stationary fish farms and portable incubation units in order to achieve maximum compensation effect to restore commercially important fish species where their stocks were seriously depleted by human activities.

The fish hatchery comprising pools and nursing ponds is proposed to be used for:

- reproduction of whitefish species (nelma, muksun, omul, and peled), and
- reproduction of sturgeons (Siberian sturgeon) and salmon (taimen) species.

It is proposed to use the following catch areas in downstream Lena:

- Whitefish:
 - nelma (Kystatym) - August,
 - omul (Kystatym) - since beginning of September
 - muksun (Kystatym) - September
 - peled - in October-November
- Salmon:
 - taimen (Muna and Motorchuna Rivers) - end of May - early June
- Sturgeons:
 - siberian sturgeon (Kystatym, Zhigansk, Natara) - June-July.

Portable incubation units are proposed to be installed at fishery sites rich in mature producers (estuaries of Natara, Muna and Motorchuna which are tributaries of the Lena River). The larvae will be released into the arctic rivers in Eastern Yakutia (catchments of Indigirka, Yana, and Kolyma) where the status of fish stocks has significantly deteriorated. The project proposes installation of seven incubatory units in three fish breeding areas.

2.10 *TECHNOLOGIES USED*

Reproduction of whitefish species (nelma, muksun, omul, and peled) includes the following technological processes:

- selection of areas for seining;
- catching of fish for maturing in nurse ponds
- transportation of producers to the fish hatchery;
- short-term maturing of producers in nursing ponds or bayou lakes for a month;
- testing the producers for maturing level;
- collection of live fish eggs;
- transportation of live fish eggs for incubation to Chernyshevsky Fish Plant (CFP);

- incubation of whitefish eggs at CFF within 8-9 months (October-May);
- transportation of whitefish larvae for growing in nursing lakes prior to release into the Lena River.

Reproduction of sturgeons (Siberian sturgeon) and salmon (taimen) species includes the following technological processes:

- selection of areas for seining and net fishing;
- catching of fish for maturing in nurse ponds
- transportation of producers to the fish hatchery
- maturing of producers in nursing ponds or bayou lakes
- injecting producers for maturing;
- testing the producers for maturing level;
- collection of live fish eggs (June-July);
- incubation of taimen (1-1.5 months) and sturgeon (10 days) eggs in portable incubation units;
- transportation of whitefish larvae for growing in nursing lakes prior to release into the Lena River.

Portable incubation units will be operated as follows: water is regularly pumped by motor pump from a water body into a tank and when it gets optimum temperature and oxygen condition it goes to filter pumps after which it undergoes UV sterilization and goes to Weiss chambers where eggs are incubated. The water is recycled. Electric equipment is powered by an inverter type gasoline generator.

2.11 REQUIRED SUPPLIES AND MATERIALS

2.11.1 Fish breeding calculations

Based on the hatchery's projected annual capacity of 100 million eggs, average fecundity, producer's sex ratio and maturity percentage, the need for producers is estimated at about 15 tons (around 10,000 specimens of different species).

Around 400 sq m of area are needed for nursing ponds and pools to mature producers.

2.11.2 Required equipment

The production premises consist of three sections:

- 2 tanks installed in the first section (basins, canvas tanks, etc.) for producers before reproductive products are taken. A long table is installed in the middle, where operations are conducted on tapping of eggs and their insemination.
- The second section has a long table for egg activation and washing and shelves for bowls with swelling eggs.

- The third section has shelves for egg storage and should have ventilation holes.

Given the daily target for collection of 5-10 million eggs a day, the area of the production facility should be at least 120 sq m. In addition, a special storage room for equipment and used fish is also needed.

For whitefish all working rooms should have heat sources to maintain temperature not lower than 0°C and not higher than +4°C.

Water will be supplied to the hatchery by a motor pump, first to the tank and from it via pipeline by natural flow to the shops. A pipe is welded at the end of the pipeline with jets and taps. Rubber hoses are installed on jets to supply water to the tables on which eggs are washed.

It is recommended to use electrical generators on gasoline or diesel for lightning.

The fish hatchery should have necessary packing, equipment, materials and special clothing. Fish breeders should also have specific gear.

2.12 LABOUR REQUIREMENT

All technological processes will be managed by permanent staff of 16 people. Fish breeding activities will be carried out at the Central Fish Hatchery located at the Strekalovka River and on nearby lakes where additional egg collection points will be organised.

There is an agricultural college in Zhigansk which offers education and training with specialization in fish breeding and can provide the proposed fish hatchery with young specialists at the operation stage. Support staff can also be ensured locally.

Four technical staff per portable incubation unit are needed to work during the season (3 months a year).

2.13 REQUIRED WATER RESOURCES

The need for water when producers mature in spring (taimen) and autumn (nelma and other species) is as follows: -

Weight of matured producers, kg	Seating rate, kg/cu m	Water consumption, l/d kg	Water consumption, l/s	
			Per pool	For all pools
900 (nelma)	20	0.04 per kg	24	48
4000 (taimen)	30		40	160

Water consumption when eggs are washed and swelled is as follows:

Maximum daily egg volume, million	Egg load per ratio, '000	Number of bowls	Water consumption, l/s	
			per bowl	for all
5	200	25	0.03	0.75

Water is supplied to portable incubation units from 900 liter tanks using closed circuit water system.

2.14 ELECTRIC POWER

Energy demand for the fish hatchery will be determined after the respective limits and quotas have been obtained in the process of developing design documentation.

Electricity will be supplied to portable incubation units via independent power supply sources with installed power of up to 3.5 kW.

2.15 REQUIRED LAND

The land plot for the site will be allocated in accordance with the established procedure.

The egg storage facility will be built comprising the following sections:

- section for whitefish eggs from producers after reproductive products matured;
- egg storage section for transportation to the Chernyshevsky Fish Plant.

Temporary land allocations shall also be provided in accordance with the established procedure.

2.16 TRANSPORTATION

The proposed fish hatchery and portable incubation units will be supplied with own and leased transport, including motor boats and Buran snowmobiles with transport plank-beds.

2.17 ACCOMMODATION, SOCIAL AND GENERAL FACILITIES FOR PERSONNEL

Staff is largely expected to be accommodated in Zhigansk.

It is necessary to build a housing community for 4 or 5 staff at the fish hatchery.

Field camps will be organized near portable incubation units for six engineering and support staff.

2.18 WASTEWATER MANAGEMENT

It is assumed that modular wastewater treatment facilities of ERSh type or similar equipment will be used

(<http://www.inecs.org/content/production/sosv/bmos/index.phtml>).

At field bases, portable block and module water treatment units will be used (FIL D'EAU type http://www.vseslav-eco.ru/FIL_DEAU or similar).

2.19 WASTE MANAGEMENT

In addition to process waste, the site is expected to generate solid and liquid household waste. Detailed elaboration of waste management procedures will be performed in the process of the Project design development.

3 ENVIRONMENTAL AND SOCIAL ASPECTS OF PROJECT IMPLEMENTATION

3.1 BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS IN THE AREA OF PROJECT IMPLEMENTATION

3.1.1 Environmental and Geographical Characteristics of the Area

The area of Project implementation is located within the Central Yakutian taiga lowland, with western branches of the Verkhoyansk Range in the east and the Central Siberian highland in the west, in the valley of the Lena River. Near Zhigansk, the river valley has complex configuration: it is wide (around 18 km and 3 to 5 m deep) and indented with banks and islands.

Climate in Central Yakutia is sharply continental and dry. Winter is long and frosty, with little snow. The weather in winter is sunny, frosty, dry, and calm. Given lack of wind and sunny weather, ambient temperature falls to minus 53-64°C. The average temperature in winter is minus 40°C. The cold period (with temperature below 0°C) lasts for around 220 to 230 days per year (from October 9 to April 25).

Summer is short and cool with a lot of rain. Mean temperature in July is +15°C. Maximum temperature reaches +35 °C. Warm period (with temperature above 0°C) lasts around 70 to 80 days. Mean annual temperature is minus 12 °C.

Average 200-250 mm of precipitation falls during a year. The rainiest seasons are autumn and summer. Total precipitation during a period with temperature above +10°C (June, July, and August) is in the range of 100-130 mm. Maximum duration of the strongest winds up to 10 days is observed in March-April and October. In summer, the average wind velocity slightly decreases (to 4.9 m/sec), but increases in spring to 5.0-5.1 m/sec and represents a significant evaporation factor.

The main river in the area is Lena in its downstream with numerous tributaries including Linde, Muna, Motorchuna, Menkere, etc. Water rise after winter low-water period begins on May 10-15. The flooding peak (all-year high water level) is recorded, on average, on June 1 with water level of 1,024 cm. The peak of snow melt flood coincides with spring ice drift, which begins average on May 29. The ice drift lasts 5-7 days. In July-September, water level gradually decreases. Level progress is interrupted by rain flood water. The summer-autumn minimum level is recorded average on September 16 at the 120 cm value. From late September to early October first ice formations appear in the form of floating ice and shore ice. In 3-5 days after the first ice formations appear autumn ice drift begins, which lasts 15-18 days. Then the freezing period begins. From December to May, when water level begins to rise in spring, water level steadily drops by 1-3 cm every day. The freezing

period average lasts 235 days. No winter ice breaks on the river were recorded.

A 12-month low of water mineralization falls to spring flood and a 12-month high to winter. The chemical composition of water is formed given insufficient humidification. Lack of deep circulation underground waters predetermines low mineralization level of low flow waters. According to Alekhin classification, water of the Lena River is classified as bicarbonate and belongs to the second type of calcium group.

Total water hardness is 2.52 mol/l. During snow melt flood it is average 2.61 mol/l. Maximum hardness values are attributable to winter low-water period – 2.65 with average value at 2.1 mol/l. Based on these values, given the commonly accepted classification, water from the Lena River should be classified as “very soft”.

The pH value of water in the Lena River also has quite a narrow range, from 6.4 to 7.6.

The permafrost is complete with medium ice content. The permafrost thickness is 300-500 m and 1,000-1,500 m in the mountains. Landscape is predominantly woodland and tundra forest, tundra in the mountains. Bogginess on lowlands reaches 30%.

The area is characterized with numerous hydrolacolytes (bumps with ice nuclei) and cave-in thermokarst lakes, and alases (flat plane-bottom coombs oval in shape).

Soil of the area relates to frozen taiga, subtype gley frozen taiga. Frozen formations are 500-600 m deep. Seasonal thawing ranges from 0.5 to 1.6 m.

Vegetation is diverse: there are fragments of feather-grass steppe, alkaline flora, unrefined boreal forest. The most characteristic specific feature of vegetation here is its saturation with meadow-forest-steppe and meadow-marsh-forest associations.

Notwithstanding severe climatic conditions in downstream Lena, the regime for ichthyofauna is relatively favorable. This is the case due to outflow of heavy masses of water (over 194,000 cu m/sec) with high temperature (over 240) and maximum sediment of suspended solids here.

3.1.2 Socioeconomic Characteristics of the Area

Zhigansky Ulus was founded on December 10, 1930. The administrative centre is the settlement of Zhigansk located 750 km from the capital of the republic, Yakutsk.

The ulus comprises 4 municipalities including Bestyakhsky nasleg, Zhigansky nasleg, Lindinsky nasleg and Evenki municipality of Kystatyam (Lensky nasleg).

The ulus area is 140,200 sq km. Based on the 2008 census, the population is 4,312 people, with almost half of them (2,046 people) Evenkis. More than 30% (1,445 people) are Yakuts, nearly 20% (821 people) Russians and other ethnic groups. Population density is 0.03 persons per sq km. There are 5 settlements in the ulus.

Agriculture (reindeer husbandry and animal breeding), fishing and hunting of fur animals are in the centre of the local economy.

Significant part of the land bank is formed by agricultural lands including hayfields and pastures. There are large areas of traditional lands.

Zhigansk was founded in 1632 as a small fortress. Its population was 4,000 people in 2009. There is a river port, a logging depot, and Usunku indigenous community involved in reindeer husbandry, animal breeding and fur hunting. There is also a recreation centre, two libraries, secondary and music schools, an agricultural college, medical clinics, shops and Afanasy Yvarovsky History Museum. There is an airport in the settlement.

There are following infrastructure facilities in the area of Project implementation:

- river port
- ferry crossing
- network of permanent and winter roads, including an all-year round motorway Zhigansk - Vilyuisky High Road
- 5 300 kW diesel power plant owned by Sakhaenergo
- Zhigansk Airport

3.2 ENVIRONMENTAL AND/OR SOCIAL ISSUES TO BE ADDRESSED BY THE PROJECT

The Project will address the following potential significant environmental and social issues:

- 1 Depletion of unique stocks of whitefish, sturgeons and salmon fish and reduction of their spawning populations in subarctic and arctic rivers in Yakutia as a result of anthropogenic impacts;
- 2 Lack of existing fish breeding programmes, i.e. fish hatcheries and farms aimed at restoration of depleted fisheries and biodiversity conservation.

3.3 ASSESSMENT OF ENVIRONMENTAL RISKS ASSOCIATED WITH THE CURRENT SITUATION

Retaining the status quo will lead to further reduction of commercial fish species in the Lena River basin and arctic river basins both as a result of ongoing unsustainable use of fish resources in these rivers and due to natural inertia. For this reason, environmental risks are assessed as **high** and of **regional** magnitude with respect to their potential impacts.

3.4 PRELIMINARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT OF THE PROJECT

Maximum environmental impact is expected at the construction stage and will be associated with air emissions from construction machinery, generation of construction waste, local pollution and mechanical disturbance of soil and pollution of surface water as a result of polluted stormwater runoff from the construction site.

Measures to prevent these adverse impacts will be proposed at the stage of development of working, design and construction documentation.

3.5 EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS OF THE PROJECT

It is estimated that the proposed fish hatchery can facilitate through fish stocking production of around 1,000 tons of whitefish species annually, including:

- 600 tons of omul within 8 to 10 years,
- 80 tons of muksun within 10 years,
- 100 tons of nelma, and
- 200 tons of peled within 12 to 14 years.

With regard to sturgeons and salmon fish, it is expected to produce through mobile incubation units with the capacity of 500,000 sturgeon eggs and 300,000 taimen/lenok eggs:

- in 14 to 16 years – up to 40 tons of sturgeon,
- in 5 to 8 years – up to 300 tons of taimen, and
- in 5 to 8 years – up to 80 tons of lenok.

The indicators for assessing the project performance are:

- conservation of gene bank and increasing population of whitefish, sturgeons and salmon in the river basins of Project implementation;
- increased fish capacity of the rivers;
- improvement of aquatic ecosystems and promotion of sustainable development in the arctic river basins in Yakutia.

3.6 NATIONAL AND INTERNATIONAL ENVIRONMENTAL PRIORITIES COMPLYING WITH OBJECTIVES AND TARGETS OF THE PROJECT

Measures to ensure restoration of commercial fish stocks in subarctic and arctic river basins in Yakutia agree with the main objectives and goals of the Strategic Action Programme for Protection of the Russian Arctic Environment (SAP-Arctic) approved by the Marine Board under the Russian Government on June 19, 2009.

Within the framework of the main long-term goal of SAP-Arctic, i.e. implementation of measures for prevention, elimination and abatement of consequences of negative environmental impacts in the Russian Arctic, the Project addresses a number of issues within one of the main components of the SAP-Arctic, namely:

- conservation and improvement of the quality of the environment, living conditions of the indigenous small-in-numbers peoples and conditions for traditional nature use by native small nations of the North.

Under this component, the Project follows the following objectives (with respect to the conservation of biological and landscape diversity and the potential for renewable biological resources affected by technological and human-caused pollution):

- Developing research on the biota and ecosystems of the Arctic, including research with the international and regional participation;
- Supporting activities for the ecological reclamation and rehabilitation of disturbed land; implementing re-introduction activities for the restoration of populations of species that have gone extinct in certain regions.

The Project also agrees with the main objectives of the Government Policy in the Arctic defined in the Basic Provisions for the National Policy of the Russian Federation to 2020 and onwards (approved by President on 18.09.2008). In particular, in the field of environmental safety the Project aims at one of the main objectives of the Russian Arctic Policy, i.e. conservation and protection of the natural environment in the Arctic, elimination of environmental consequences of human activities under the conditions of intensification of economic efforts and global climate change.

At the federal level, there is the Federal Target Programme “Enhancement and Development of the Fisheries in the Russian Federation in 2009 to 2013” approved by Governmental Decree 606 dd. 12 August 2008 and coordinated by the Federal Fishery Agency (*RosRybolovstvo*). The Programme aims to improve fish breeding capacity countrywide, enhance efficiency of fish stock studies and assessments in the fishing areas and improve catch efficiency.

With regard to restoration of fish stocks, the Programme envisages implementation of 58 projects on construction and modernization of fish hatcheries and farms located in 27 Russian federal subjects.

According to the Sakha Ministry of Environmental Protection, an application for construction of the fish hatchery near Zhigansk was never submitted for inclusion in this Federal Target Programme. Potential funding opportunities under the Programme are discussed in Section 5.3 below.

At the republican level, no programmes or strategies have been developed to promote sustainable use of water biological resources, including fish resources of subarctic and arctic river basins in Yakutia. In order to facilitate conservation and restoration of commercial fish stocks of subarctic and arctic river basins in Yakutia it is necessary not only to perform measures on artificial restoration of depleted fish stocks, but also set up a comprehensive regime of sustainable use of natural resources in these basins using an interdisciplinary approach and joint work of lawyers, economists, ecologists, biologists, local residents, businesses and other stakeholders.

3.7 STAKEHOLDER ENGAGEMENT PROCESS

3.7.1 Administrative and Supervisory Organizations

- **Government of the Republic of Sakha (Yakutia) and Administration of Zhigansky Ulus (District) Municipality**

Approvals relating to land issues, compliance with the objectives defined in the governmental target programme “Environmental Protection in the Republic of Sakha (Yakutia) in 2007-2011”.

- **Ministry of Environmental Protection of the Republic of Sakha (Yakutia)**

Surveillance measures, permitting documents, state environmental review of projects at the regional level, environmental monitoring.

- **Department of the Federal Service for Supervision of Natural Resource Usage of the Republic of Sakha (Yakutia) (RosPrirodNadzor)**

Supervision over environmental protection measures, approval of survey programmes, issue of permitting documents, project review, environmental monitoring

- **Department of Water Resources Management, Lena Basin Division of the Federal Agency of Water Resources**

Approval of survey programmes and projects, issue of permits and resolutions relating to water abstraction and water use.

- **Lena Department of the Federal Service for Supervision of Environment, Technology and Nuclear Management (*RosTekhNadzor*)**

Surveillance functions, approval of survey programmes, licensing, permitting documents, and experts' review.

- **Yakutian Department of Hydrometeorology and Environmental Monitoring (*Yakutia UGMS*)**

Licensing of activities in the field of hydrometeorology and environmental monitoring, hydrometeorological review, collection of data from weather stations, provision of hydrometeorological data, performance of hydrometeorological surveys, and participation in monitoring programmes.

- **Yakutian Subsidiary of the Territorial Data Fund for the Far Eastern Federal Region, Ministry of Natural Resources**

Collection of archive data.

- **Territorial division of the Federal Service of State Statistics for the Republic of Sakha (Yakutia) (*RosStat*)**

Collection of archive statistics.

- **Far Eastern Service for Supervision over compliance with legislation in the field of cultural heritage conservation (*RosOkhranKultura*).**

Approvals and collection of archive data

- **Border Guard Service, Federal Security Service of Russia**

Approval of performance of surveys and other activities, issue of permits for entry of foreign citizens.

3.7.2 Non-governmental organizations potentially operating in the area

International and all-Russian:

- Greenpeace Russia;
- WWF Russia;
- International Union for Conservation of Nature Russia;
- Socio-Ecological Union International (SEUI);

- Commission of the Public Chamber for Environmental Safety and Protection;
- Alliance of public organizations – Russian Ecological Congress (REC);
- Green Patrol;
- Russian Society of Ecological Economics (ROEE).

Regional NGOs:

- **Center for Environmental Education of the Republic of Sakha (Yakutia) – Eige**

A non-governmental organization promoting and implementing environmental education and research programmes (public environmental monitoring, consulting, publishing, etc.) and supporting public initiatives for sustainable development of the civil society in the Republic of Sakha (Yakutia).

- **Public Environmental Center of the Republic of Sakha (Yakutia)**

The oldest public environmental organization in the Republic of Sakha (Yakutia). Currently, it performs public environmental monitoring of the construction of the trunk oil pipeline East Siberia – Pacific Ocean, major hydropower projects, and environmental impacts of the diamond and gold mining operations.

- **Yakutian division of the Russian Nature Conservation Society**

Projects on environmental education, public environmental surveillance, public environmental review of projects, etc.

- **Public Environmental Monitoring Network of the Republic of Sakha (Yakutia)**

Public environmental monitoring of conditions in residential areas, forests, water bodies, as well as supervision over environmental performance of enterprises using natural resources.

- **Association of Evenkis in the Republic of Sakha (Yakutia)**

Restoration and conservation of Evenki culture and language, activities aimed at expanding local self-government of Evenki communities, protection of legal rights of indigenous ethnic minorities in the Republic of Sakha (Yakutia).

3.7.3 Potential Sponsors

- **Federal Agency for Fisheries of the Russian Federation**

Contracting Authority for the Federal Target Programme 'Improving Efficiency and Developing Resource Potential of Fisheries in 2009 to 2013'.

- **European Bank for Reconstruction and Development**

Potential co-financing of the Project.

4 DESCRIPTION OF PROJECT INITIATOR/BENEFICIARY

The Project Initiators are the Biological Resources Department (BRD) of the Environmental Protection Ministry of the Republic of Sakha (Yakutia) and the Institute for Applied Ecology of the North of the Federal Education Agency of the Ministry of Education and Science of the Russian Federation. The Biological Resources Department is proposed as a potential beneficiary.

The Department was organized by Decree of the Sakha President 1182 dated October 9, 1995 on the basis of the Environmental Regulation Department, Hunting Regulation Laboratory of the Sakhabult National Corporation and the Fisheries Regulation and Forecast Department. The BRD is part of the Sakha Environmental Protection Ministry reporting directly to the Minister. It is included in the state organizations register.

The BRD is governed by the Statute on the Biological Resources Department of the Environmental Protection Ministry of the Republic of Sakha (Yakutia), approved by Governmental Decree 216 dated May 21, 2006. The BRD is a regulatory agency in the areas of protection, registration and reproduction of flora and wildlife species not classified as hunting objects on the territory of specially protected nature areas of republican level and management of specially protected nature areas in Yakutia.

The main purpose of the BRD's activities is biodiversity conservation and sustainable use of biological resources.

In accordance with the above Statute, the BRD implements the following tasks:

- Participating in implementation of republican programmes on reproduction of biological resources not classified as hunting objects;
- Conserving biological diversity, particularly species not classified as hunting objects;
- Protecting, maintaining records and reproducing flora and wildlife not classified as hunting objects on the territory of protected nature area of republican level;
- Participating in maintaining state register and cadastre of flora and wildlife not classified as hunting objects, updating the Red Book of RS (Ya) and the White Book of the Arctic;
- Participating in development of republican statutory acts in the area of specially protected nature areas, protection, reproduction and use of wildlife objects not classified as hunting objects and their habitats;

- Participating in development of state programs, measures to protect, reproduce and sustainably use flora and wildlife resources not classified as hunting subjects and development of specially protected nature area of republican level.
- monitoring status of biological resources;
- organizing and coordinating studies to conserve and enrich gene bank of natural ecosystems.

To implement those tasks, the BRD organizes protection of specially protected nature areas; issues permissions to enter, stay and visit specially protected nature areas of republican level, organizes measures to relocate and acclimatize flora and wildlife of republican level, maintains state cadastre of specially protected nature areas of republican level, organizes artificial reproduction of water biological resources; provides population with information about the status of biological resources, except for hunting objects; regulates use of wildlife objects, except for hunting objects; approves fishing quotas for small indigenous peoples of the North; and organizes and manage operations of Orto-Doidu Republican Zoo and Chernyshevsky Fish Plant.

Expenditures of the BRD are financed under Regional Law “On State Budget of the Republic of Sakha (Yakutia)”, Federal Law 184-FZ dated 06.10.99 “On Main Principles of Organization of Legislative and Executive Bodies of the Russian Federation” and Governmental Decree 975 dated December 29, 2007 “On Approval of Rules to provide in 2008-2010 federal budget subventions to budgets of constituent entities of the Russian Federation to exercise certain powers of the Russian Federation in the sphere of protection and use of fauna objects (except for classified as hunting objects and water biological resources)”.

4.1 DETAILS OF THE DEPARTMENT

Full name:	Biological Resources Department of the Environmental Protection Ministry of the Republic of Sakha (Yakutia)
Legal address:	14, Sverdlova St., Yakutsk, 677005
Actual address:	14, Sverdlova St., Yakutsk, 677005
Telephone/Fax:	Tel. +7 (4112) 22 57 49, fax +7 (4112) 22 58 03
e-mail:	dbr@sakha.ru
State registration certificate of a legal entity:	# 0011627505 dated 20.02.2008

OGRN	1031402026700
INN	1435022234
KPP	143501001
Director	Mr. Yakov Sivtsev
Chief accountant	Mrs. L.I. Azizova

4.2 ORGANIZATIONAL SSTRUCTURE OF THE DEPARTMENT

The BRD comprises the following units:

- Control, licensing and legal support unit;
- Wildlife introduction unit;
- Cadastre and the Red Book unit;
- Reproduction of water bioresources unit;
- Water bioresources monitoring and fishing regulation unit;
- Administrative and management staff.

5.1 TOTAL COST OF THE PROJECT

The cost of design and construction of the fish hatchery, installation of equipment and commissioning of the facility will not exceed 470,000 Euros¹.

The cost per portable incubation unit, including installation costs, is around 15,500 Euros, not inclusive of wages of support staff. Total operating costs of seven portable incubation units inclusive of overhead costs will be 310,000 Euros in the first year.

Total cost of design and capital expenditures is estimated at 780,000 Euros.

Total operating costs of the fish hatchery and portable incubation units are estimated at 200,000 to 220,000 Euros per year.

Cost estimates were calculated using data from the BRD.

The costs of design and construction of the fish hatchery are made of:

- design documentation development;
- administrative and technical measures;
- costs for catching and maturing producers;
- purchase of materials, special clothes and equipment, and
- transport costs.

Construction costs for portable incubation units include:

- equipment and spare parts;
- consumables and auxiliary equipment;
- wage fund, and
- transport and overhead costs.

Operating costs of portable incubation units are made up only of wages, auxiliary equipment, travel and transport costs, and purchase of consumables.

Cost breakdown for one portable incubation unit is given in Annex A.

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¹The 1/45 RUR/EUR exchange rate is used

5.2 PRELIMINARY PHASES FOR PROJECT IMPLEMENTATION

It is assumed that the Project will be implemented in two phases:

- Phase 1 (Q2 2010 – Q1 2011): preparation of design and engineering documentation and getting necessary permits and approvals;
- Phase 2 (Q1 2011 – Q3 2011): supply of equipment, construction works and commissioning of the facility.

5.3 FINANCING SOURCES IDENTIFIED

In identifying potential sources of financing for the Project, a number of factors critical for potential sponsors were taken into consideration as follows:

- Project activities focus mostly on the mitigation effect for the loss of commercially important and rare fish habitats in the arctic river basins, and
- Limited regional budget financing.

5.3.1 Budget Sources

According to the Sakha Environment Protection Ministry, in case of potential sponsors' interest, the Project can be included in the regional target programme "Environment Protection of the Republic of Sakha (Yakutia) for 2007-2014" for funding of works for preparation of project design documentation.

Co-financing of the Project under the Federal Target Programme 'Improving Efficiency and Developing Resource Potential of Fisheries in 2009 to 2013' was discussed on November 13, 2009 during the meeting with Mr. Vladimir Belyaev, Head of Science and Education Department at the Federal Fisheries Agency. By Letter U04-1604 dd. December 1, 2009 (see Annex), the Federal Fisheries Agency deemed it appropriate to consider financing of this project after due consultations with the regional and federal authorities.

5.3.2 International Financing Sources

Potential opportunities for financing of the project by the European Bank for Reconstruction and Development (EBRD) was discussed on February 2, 2010 with Mr. David Williamson, EBRD Principal Environmental Specialist who noted that there should be a commercial upside on the investments from EBRD.

This PINS is currently going through a Concept Review, with the results expected by May 2010.

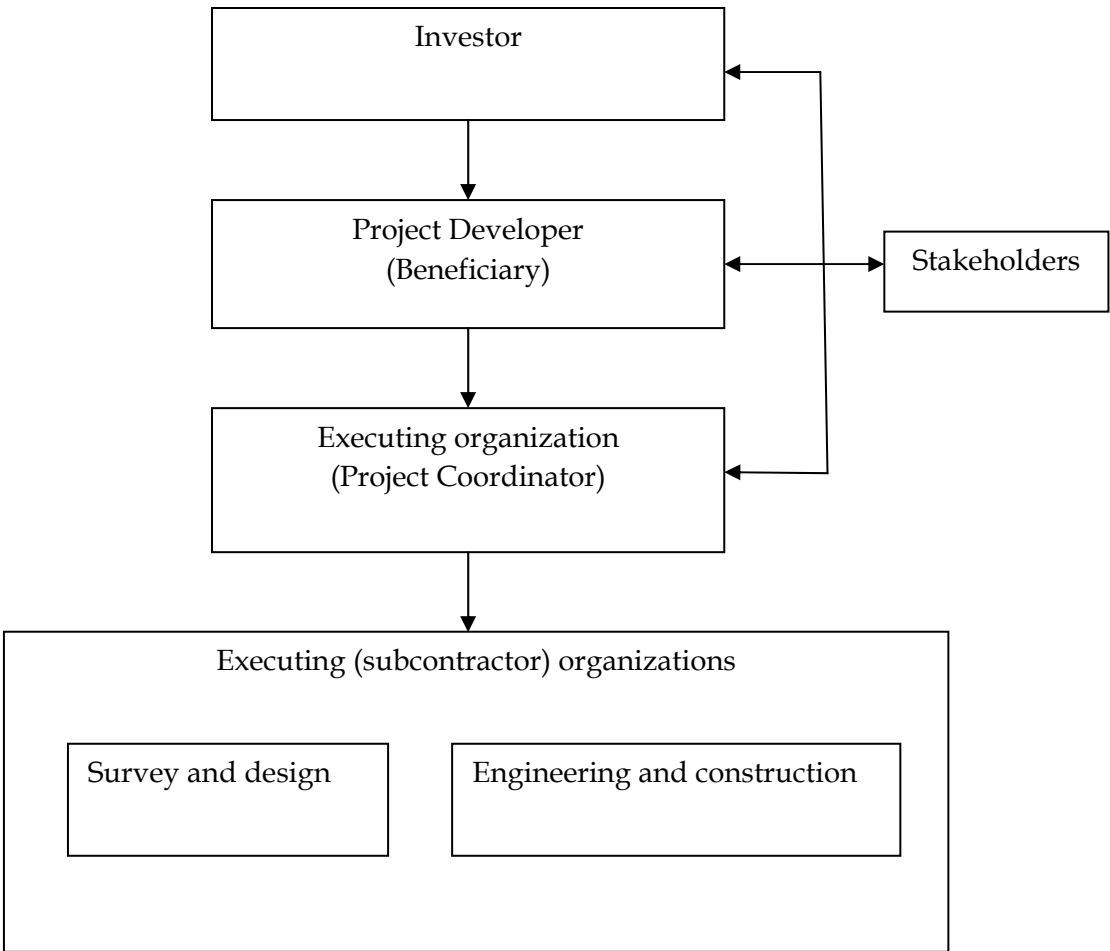
5.4 ORGANIZATIONS TO BE INVOLVED IN PROJECT IMPLEMENTATION

The Project Developer (Beneficiary) will act through the Executive Organisation / Project Coordinator. Engineering and construction organizations for execution of the work will be commissioned by the Project Coordinator on the basis of sub-contracts for implementation of individual components of the Project.

In particular, to develop design and cost estimate documentation the BRD has retained:

- **Institute for Applied Ecology of the North (FGU IPES)**

The Project management structure is shown in Figure 4.1.



6 *FINANCIAL AND ECONOMIC INDICATORS OF THE BENEFICIARY*

This information can be obtained from the NPA Arctic Project Office or from the Executing Agency

7 ANALYSIS AND ASSESSMENT OF RISKS AND UNCERTAINTIES

7.1 ISSUES REQUIRING SPECIAL ATTENTION IN THE PROCESS OF THE PROJECT PLANNING

7.1.1 Financial and Economic Aspects

- High operating costs

7.1.2 Technical Aspects

- Extremely severe operating conditions for materials, equipment and machinery;
- Selection of water bodies of oxbow type or small lakes for maturing of producers in the 10 km range from the catching location. In summer low water period, from 20 July to 1 August these water bodies should be located 2 m higher than the water level in the river, which is the important factor to consider since water in Lena river often rises by 1.5 to 2 m by the end of summer.
- Establishing nurse ponds which should be 1.5-3 m deep and preferably have no silted up bottom. The area of each nursing pond should be about 30x30 m;
- Availability of working premises for temporary fish egg storage with an area of about 40 sq m. If works are performed in October, when temperature drops to minus 20°C, the premises should be heated.
- Purchase of a cross-country vehicle or a tractor for transportation of producers from the catching point to maturing location.

7.1.3 Institutional Aspects

- Governmental procurement procedures are not open or transparent.
- Need for setting up a comprehensive regime of sustainable use of natural resources in arctic and subarctic river basins in Yakutia using an interdisciplinary approach and joint work of lawyers, economists, ecologists, biologists, local residents, businesses and other stakeholders

7.1.4 Environmental Aspects

- Long winter period and harsh weather conditions

- Selection of appropriate seining net to ensure catching necessary number of producers and selection of seining net matching the fishing ground relief.

7.1.5 Social Aspects

- Need to build residential premises for 4 to 5 staff.

7.2 MAIN RISKS AND MITIGATION MEASURES

7.2.1 Main Risks

The following risks are associated with implementation (non-implementation) of the Project and able to have a significant effect on the outcome of the Project:

Financial and Economic Risks

- lack of interest on the part of identified potential donors;
- withdrawal from the Project of one or several sponsors;
- insufficiency of funds originally planned in the budget; unpredicted increase in the Project cost .
- insufficient efforts on state support of conservation of commercial fish species in subarctic and arctic river basins in Yakutia.

Social Risks

- lack of qualified labour force among permanent residents of the area

7.2.2 Risk Mitigation Measures

The implementation of the Project implies the following measures for mitigation of the identified risks:

Financial and Economic Measures

- consultations with a wide range of potential donors with due consideration of the geographic aspects of their financial assistance (conducted by ERM at the PINS preparation stage);
- development and approval of acceptable time schedule of payments, elaboration of a procedure and timely adjustment of plans relating to financing of the Project;

- expansion of the mechanisms of the public-private partnership and encouragement of involvement of national and foreign investors.
- retaining reputable design development organizations and contractors for preparation of Project design and engineering documentation and for supply of equipment;
- including measures to protect and conserve commercial fish species of subarctic and arctic river basins in Yakutia in state and republican target programmes, developing plans and strategies to conserve and restore subarctic and arctic commercial fish species in Yakutia;
- detailed study of proposed technical solutions at the preparatory stage of design and engineering documentation.

Social Measures

- retaining qualified staff for Project implementation

ANNEXES

Cost for a portable incubation unit, inclusive of spare parts, RUR

	Name of component	Unit	Number	Price	Cost
1	Polyurethane shield	items	14	16000	224000
2	Polypropelene canvas	m ²	20	450	9000
3	Fastenings	items	80	70	5600
4	Ribs	items	16	800	12800
5	Grundel pump	items	2	8400	16800
6	Flexible tube	m	100	350	35000
7	Plastic drum, 300 l	items	3	4500	13500
8	Stand for Weiss Devices	items	1	15000	15000
9	Weiss Device	items	10	4200	42000
10	SDMO power unit (3,5 kW)	items	1	74000	74000
11	Yamaha reserve power unit (1 kW)	items	1	42000	42000
12	Power cable	m	130	45	5850
13	Extension cable with a T connector	items	2	1200	2400
14	Daylight lamp	items	4	1800	7200
15	Tetratec water filter, 600 l/h	items	4	14000	56000
16	Filter medium	items	8	1200	9600
17	Tetratec aerator with pulverizer	items	1	2700	2700
18	Thermooxymeter	items	1	16000	16000
19	Quartz lamp	items	4	9800	39200
20	Plastic table with wall fixing clamp	items	2	9800	19600
21	MBC-1 binocular microscope	items	1	24000	24000
22	Tray for fish maturing	items	4	3000	12000
23	Tray for fry maturing	items	2	5400	10800
	Total:				695 050,00

Consumables and auxiliary equipment

	Name of equipment	Unit	Number	Price	Cost
1	Yamaha outboard engine, 30 hp.	items	1	160000	160000

2	Transom dinghy	items	1	140000	140000
3	Nets of 40-70 mm	items	20	1200	24000
4	Seining net of 70 m	items	1	1000	1000
5	Cord	m	300	5	1500
6	Transportation pool for producers	items	2	8400	16800
7	Enameled bowl, 10 l	items	5	350	1750
8	Enameled bucket, 10 l	items	5	400	2000
9	Jar, 0,5 l	items	5	150	750
10	Waffle towels	items	30	100	3000
11	Rubber gloves	items	10	350	3500
12	Wellington boots	items	4	800	3200
13	Plastic tank, 40 l	items	4	1800	7200
14	Incubation device	items	5	2000	10000
15	Gauze	m	100	10	1000
16	Carp hypophysis	g	100	120	12000
17	Sturgeon hypophysis	g	100	200	20000
18	Gasoline AI 92	l	600	32	19200
19	Engine oil	l	60	250	15000
20	Tent, 2 m	items	4	8000	32000
21	Sleeping bag	items	4	6000	24000
22	Work overalls	items	4	2500	10000
23	Medicine box	items	4	450	1800
24	PPE	items	20	150	3000
	Total				507900,0

Remuneration

		Number	Period, months	Cost	Consolidated social tax (24%)	Total
1	Salary of a lead expert	1	3	20000	4800	49600
2	Salary of a fish expert	1	3	15000	3600	37200
3	Salary of an engineer	2	3	12000	2880	29760
4	Rent of a motor boat	1	3	15000	3600	37200
	Total					153760,0

Other expenses

1	Delivery of cargo to destination (Yakutsk - Natara- Yakutsk)		300000
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2	Per diem (300 RUR*92 сут*4 people)	110400
3	Travel (Yakutsk-Zhigansk-Yakutsk) 4 people	64600
4	Hotel (Zhigansk) 4 people, 5 days	25000
	Total	500000,0

Total 1 702 950,00

Overhead (30%) 510885

Total 2 213 835,00



**ФЕДЕРАЛЬНОЕ АГЕНТСТВО
ПО РЫБОЛОВСТВУ
(РОСРЫБОЛОВСТВО)**

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**ERM Eurasia Limited
(И-АР-ЭМ Юрейжа Лимитед)**

Трехпрудный пер. 11/13, стр. 3, офис 1
г. Москва, 123001

01.12.2009 № 404-1604

№ _____ от _____
О проекте организации рыболовной базы
на участке р. Лена в районе пос. Жиганск

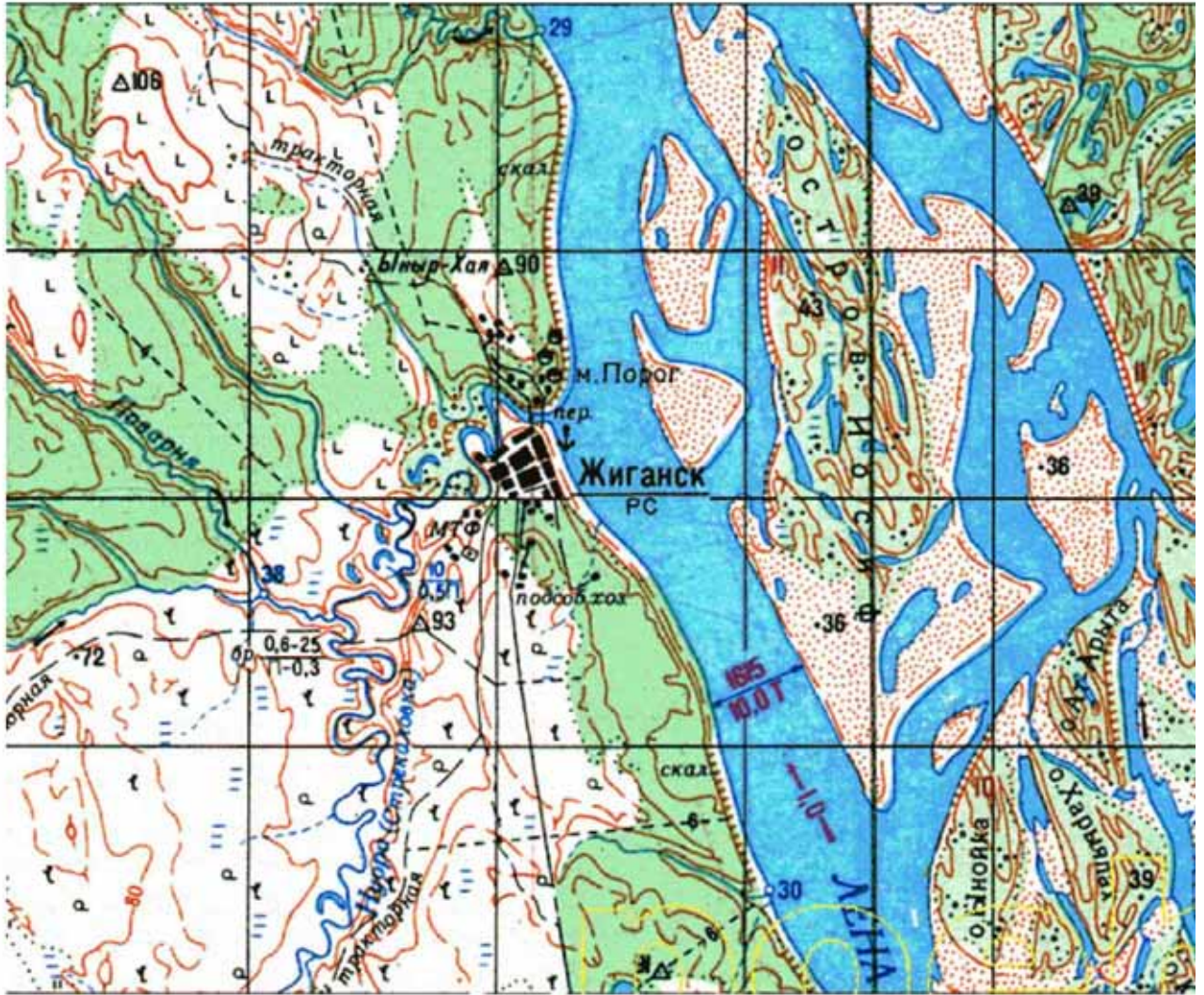
Федеральное агентство по рыболовству рассмотрело письмо ERM Eurasia Limited (И-АР-ЭМ Юрейжа Лимитед) от 13 ноября 2009 г. № М-160/09/СВ с материалами по проекту «Восстановление ценных видов рыб в субарктических и арктических речных бассейнах Якутии» (далее проект) и сообщает, что считает целесообразным рассмотреть вопрос о возможности частичного финансирования проекта в 2010-2013 годах за счет средств, выделяемых на реализацию Федеральной целевой программы "Повышение эффективности использования и развитие ресурсного потенциала рыбохозяйственного комплекса в 2009 - 2013 годах", для чего Росрыболовство рекомендует Вам направить письмо в администрацию Президента и Правительства Республики Саха (Якутия) с просьбой о содействии в вопросе включения проекта в указанную программу.

Начальник Управления
науки и образования

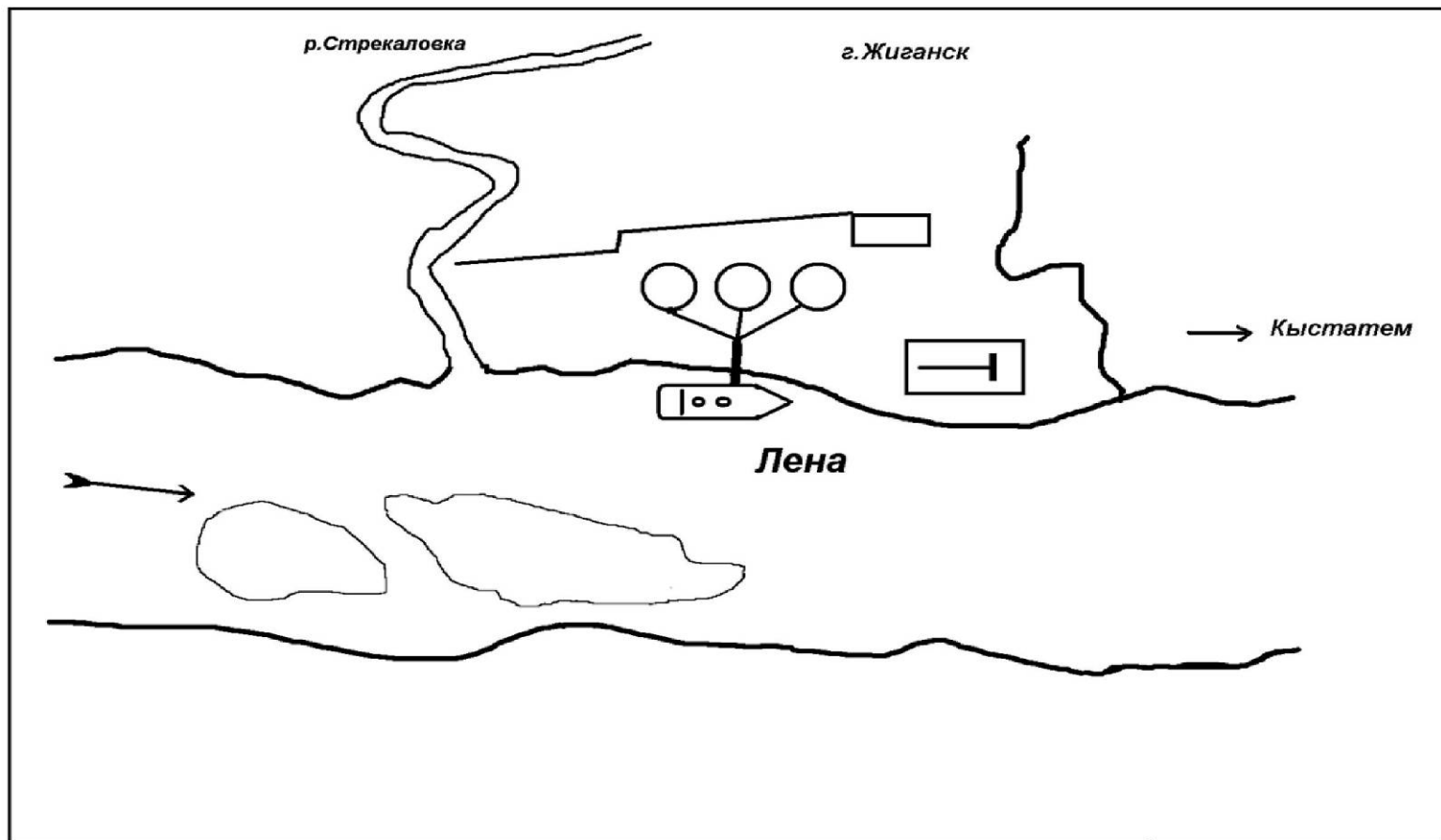
В.А.Беляев

А.Н. Рендикова
6252344
Управление науки и образования

FIGURES



Pic. 1.1. Location of the Zhigansk settlement



Pic 1.2. Preliminary scheme of fish hatchery site locaton near the Zhigansk settlement.