PROJECT IDENTIFICATION FORM (PIF) [1]
PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund

PART I: PROJECT IDENTIFICATION

Project Title:	AA2020: Integrated River Basin Management (IRBM) for major Arctic rivers to achieve multiple global environmental benefits		
Country(ies):	Russian Federation	GEF Project ID:[2]	4795
GEF Agency(ies):	UNEP (select) (select)	GEF Agency Project ID:	00819
Other Executing Partner(s):	Ministry of Natural Resources and Ecology RF, Roshydromet, AMAP, Polar Foundation, Russian Geographical Society, Governments of Sakha Republic, Yamalo-Nenets Autonomous Region and Murmansk Region	Submission Date:	2012-04-13
GEF Focal Area (s):	Multi-focal Areas	Project Duration (Months)	48
Name of parent program (if applicable): • For SFM/REDD+ ☐	GEF PA: Russian Federation Partnership on Sustainable Environmental Management in the Arctic ("Arctic Agenda 2020")	Agency Fee ($):	156,884

A. FOCAL AREA STRATEGY FRAMEWORK[3]:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount ($)	Indicative Co-financing ($)
IW-3 (select)	Outcome 3.2: On-the-ground modest actions implemented in water quality, quantity (including basins draining areas of melting ice), fisheries, and coastal habitat	Demo-scale local action implemented, including in basins with melting ice and to restore/protect coastal "blue forests" Active experience/sharing/	GEFTF	765,800	5,106,727

1 It is very important to consult the PIF preparation guidelines when completing this template.
2 Project ID number will be assigned by GEFSEC.
3 Refer to the reference attached on the Focal Area Results Framework when filling up the table in item A.

	demonstrations for "blue forests" to protect carbon Outcome 3.3: IW portfolio capacity and performance enhanced from active learning/KM/experience	learning practiced in the IW portfolio		64,277	345,000
(select) (select)			(select)		
(select) BD-2	2.2: Measures to conserve and sustainably use biodiversity incorporated in policy and regulatory frameworks	• One national and two sub-national land-use plans that incorporate biodiversity and ecosystem services valuation.	GEFTF	830,077	1,721,000
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)	Others		(select)		
		Sub-Total		1,660,154	7,172,727
		Project Management Cost[4]	GEFTF	83,008	717,273
		Total Project Cost		1,743,162	7,890,000

B. PROJECT FRAMEWORK

Project Objective: To assist Russian Federation in introducing and piloting IWRM of large Siberian rivers and mainstream biodiversity conservation into regional development frameworks with changing climate						
Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount ($)	Indicative Cofinancing ($)
1. Assessment of climate change impacts on runoff, ice regime, and permafrost melt in basins and deltas of Siberian rivers and Arctic Ocean circulation to contribute to climate-resilient development of IWRM strategies in the Russian Arctic and Arctic LMEs management (IW-3)	TA	1.1 Enhanced knowledge and institutional capacity on estimating the impacts of changing conditions of the large Arctic rivers with climate change (Lena, Ob, Northern Dvina, and Pasvik) on the delivery of ecosystem services including regulation of hydrological cycle 1.2. Ecosystem vulnerability mapping of the Siberian river	1.1.1. An established hydrological database for Siberian rivers and adjacent Arctic LMEs 1.1.2. Projected scenarios of changes in water and ice conditions in the basins of the Lena, Ob and Northern Dvina rivers for 2020 and 2050 1.1.3. Projected scenarios of changes in water circulation of adjacent Arctic LMEs for 2020 and 2050	GEFTF	362,756	1,371,727

[4] GEF will finance management cost that is solely linked to GEF financing of the project.

		basins leads to better understanding of the factors and processes to inform IWRM strategies and plans in Arctic rivers 1.3. Knowledge shared with Arctic Council partners and informs decision-making on Ecosystem based management of Arctic LMEs and shared with IW:LEARN networks	1.1.4. Projected scenarios for permafrost degradation in the Lena River basin including coastal zone for 2020 and 2050 and preliminary assessment for other river basins; 1.1.5. An integrated assessment of climate change induced water regime changes on ecosystems including biodiversity, economy and societies of Arctic river basins 1.1.6 Climate related assessment and analysis incorporated into an updated SAP-Arctic 1.2.1. Methodology for ecosystem vulnerability mapping developed 1.2.2. Ecosystem vulnerability maps developed for Northern Dvina, Lena, Ob and Pasvik river basins and ecosystem hotspots identified 1.3.1. Knowledge generated widely disseminated among Arctic nations, incorporated into recommendations of Arctic Council WGs incl. AMAP and PAME 1.3.2. Results presented at Arctic Council-related meetings and experience shared with IW:LEARN network			

2. Developing IWRM/IRBM strategies for Arctic rivers facing climate change (IW-3, BD-2)	TA	2.1. Experience in IWRM in the face of climate change is shared among circumpolar Arctic practitioners (with Mackenzie, Yukon and Northern Norway rivers) 2.2. National-level strategic planning on IWRM for the Russian Arctic river basins, also incorporating the concerns of the impacts of changing hydrological schemes and water management on the basin and coastal ecosystems	2.1.1. Establishment of the circumpolar IWRM practitioners platform with active participation of Russian stakeholders 2.1.2. Two experience sharing meetings organized and participation in the IW Conference 2.1.3. A dedicated webportal (integrated into AA2020 KM portal of AA2020 project 1) linked with IW:LEARN 2.2.1. Establishment of the IWRM consultative body with government, private sector and civil society incl. academia	GEFTF	565,799	2,256,000

		2.3. Recommendations in the strategy including specific biodiversity concerns are mainstreamed into respective federal and regional socio-economic development plans to assure financial sustainability (in collaboration with project 1 of the AA2020)	2.2.2. A national IWRM strategy for Arctic rivers, taking into account biodiversity and ecosystem services in the Arctic basin. 2.3.1. At least two federal and regional socio-economic development plans incorporating IWRM principles, biodiversity and basin ecosystem services and recommendations of the IWRM strategy for Arctic rivers			
3. Development and limited-scale implementation of IRBM plan for Lena and Pasvik river basins based on best available international knowledge and expertise (BD-2 and IW-3)	TA	3.1. Strengthened institutional capacity for IRBM/IWRM including biodiversity conservation for Lena and Pasvik river basins 3.2. Development of IRBM/IWRM plan taking into account climate change increases resilience of ecosystems, economies and societies of river basins 3.3. Strategic demonstrations supporting IRBM/IWRM implementation for Lena and Pasvik rivers show measurable results an d replication potential 3.4. IRBM/IWRM experience for two river basins is widely disseminated and results sustainability assured	3.1.1. Strengthened institutional mechanisms (e.g., Coordinating Committee or Basin Commission) established for Lena and Pasvik rivers using participatory approach with government, protected area managers, private sector, indigenous communities and NGOs/academia 3.2.1. IWRM/IBRM Plans for Lena and Pasvik river basins and endorsed by relevant regional governments, including Republic Sakha (Yakutia) for Lena River Basin, Pechengsky District of Murmansk Oblast for Pasvik River Basin 3.2.2. Biodiversity values and basin ecosystem services are mainstreamed into IRBM/IWRM plans for two river basin management plans 3.3.1. Priority 2-3 on-the-ground demonstrations supporting IWRM/IRBM plans for each of the Lena and Pasvik	GEFTF	731,599	3,545,000

			3.4.1. Dissemination of the results of this component at the federal level and indicators of sustainability of these efforts demonstrated through the practitioners platform (Component 2)			
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
			Sub-Total		1,660,154	7,172,727
			Project Management Cost[5]	(select)	83,008	717,273
			Total Project Costs		1,743,162	7,890,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, ($)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount ($)
GEF Agency	UNEP	In-kind	200,000
Other Multilateral Agency (ies)	Polar Foundation	Unknown at this stage	1,050,000
National Government	MNRE, Roshydromet	Unknown at this stage	2,540,000
Local Government	Government of Sakha Republic, Government of Yamalo-Nenets Autonomous District, Government of Murmansk Region	Unknown at this stage	2,900,000
Others	Russian Geographical Society	Unknown at this stage	800,000
Other Multilateral Agency (ies)	AMAP of the Arctic Council	Unknown at this stage	150,000
Others	International Secretariat of the Dialogue on Water and Climate	Unknown at this stage	150,000
Others	Arctic-HYDRA Program	In-kind	100,000
(select)		(select)	
(select)		(select)	
Total Cofinancing			7,890,000

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (a)	Agency Fee (b)[2]	Total c=a+b
UNEP	GEF TF	International Waters	Russian Federation	871,581	78,442	950,023
UNEP	GEF TF	Biodiversity	Russian Federation	871,581	78,442	950.023

5 Same as footnote #3.

(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total Grant Resources				1,743,162	156,884	1,900,046

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table

[2] Please indicate fees related to this project.

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 the GEFfocalarea/LDCF/SCCF strategies:

The project is consistent with GEF International Waters Focal Area Strategic Objective IW-3 "Support foundational capacity building, portfolio learning, and targeted research needs for joint, ecosystem-based management of transboundary waters systems" through foundational capacity building, targeted research and learning as well as pilot demonstrations of IWRM practices in the draining areas with melting ice. Project emphasis is placed at the federal as well as regional levels with specific IWRM application targeted at two river basins (Lena and Pasvik rivers). The project has strong transboundary implications for environmental quality of Arctic LMEs by improving water resources management, biodiversity conservation and other ecosystem services in the associated basins of Arctic rivers. This project will also be the first ever effort in the Russian Federation to start looking at the integration of IWRM and ICM approaches tested for Lena river basin (ICARM approach) through its links to ICM components of project 1 in AA2020.

The project is largely consistent with BD focal area priorities on protected areas that recognise that "developing climate-resilient protected area systems remains a challenge for most protected area managers because the scientific understanding and technical basis for informed decision-making on adaptation or resiliency measures is in its nascent stages." The project will provide this required understanding to be used in the development and integration of climate resilience into protected area management. This will be achieved by addressing BD-2 aimed at biodiversity conservation mainstreaming into production landscapes, seascapes and sectors. The project, *inter alia*, will incorporate climate resilience into PA management frameworks as part of the IWRM planning process and valuation of ecosystem services into IWRM/IRBM frameworks at the regional level. At the federal level, biodiversity concerns will be integrated into IWRM national strategy and recommendations for the development of socio-economic development plans defining sectoral development priorities. The project is fully complementary and does not overlap with the BD conservation and Arctic governance projects of the AA2020.

A.1.2. For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities: N/A

A.2. National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:

The Strategic Action Programme for the Protection of the Russian Arctic Environment (SAP-Arctic), developed under the UNEP/GEF Project on Russian Federation: Support to the National Plan of Action for the Protection of the Arctic Marine Environment (2005-2011) and approved by the Maritime Board of the Government of the Russian Federation, describes the goals, tasks, principal activities and targets for protecting the Russian Arctic environment for the period up to 2020. The SAP-Arctic includes the prevention, management, and abatement of environmental pollution and the deterioration of surface and groundwater quality of the rivers, lakes, and coastal areas of the Russian Arctic, emphasising a need to improve the northern river systems for conservation and sustainable use of water resources, aquatic ecosystems and biodiversity. One of its strategic objectives identifies climate risk mitigation measures on the ecosystems, economic sectors and population including Northern indigenous communities.

Under the Federal Targeted Program "Ecology and Natural Resources of Russia" (2002-2010), a set of studies have been commissioned for assessment of climate change impact on Arctic water systems. There are several sectoral programmes targeting climate change impacts on water systems of the Arctic, including programmes of Roshydromet (monitoring and assessment programs) and Russian Academy of Sciences ("Environmental and climate change: natural disasters" and "Natural processes in polar regions and their development during the next decades"). Strong and long-term support for this research, yet not well connected to policy development, is the recognition and reflection of the importance the Russian Federation attaches to the need to mainstream the management of the Arctic river basins and the associated climate change impacts into the Arctic sustainable development priorities.

With adoption of the Climatic Doctrine in December 2009, the Russian Federation has developed policy interventions aimed to support the development of climate change adaptation measures, including adaptation in water-related sectors. The Fourth and Fifth National Communications of the Russian Federation to the UNFCCC specifically identified the need for addressing climate change adaptation in the water sector of the Russian Arctic. For the Russian Arctic and Sub-Arctic areas, specific policy and action to address climate-related issues includes infrastructure development and operation, flood preparedness strategies, monitoring and assessment measures, as well as sustainable technology deployment and transfer for protection against coastal erosion.

The new Water Code of the Russian Federation was adopted in 2006 and came into force on 1 January 2007. It is a framework national law regulating the protection and use of water resources. Along with other national laws, such as the national law on environmental protection, the national law on the Earth's interior and the national land code, and the other legislation of the federal subjects, this Water Code established a comprehensive system of domestic water legislation. The Water Code adopts a basin approach to water governance in the Russian Federation. It defines the economic mechanisms for water use, including a system of payments for water use, and economic incentives for protection and conservation of water resources. The Water Code does not provide a mandate to set the targets for each river basin. Nor does it require to develop action plans or IRBM plans. This shows a contrast with the Water Directive of the EU, which requires all river basins to develop IRBM plans by 2009. The project is largely consistent with this main federal law but will go further into operationalisation of the IWRM principles and approaches in managing the Russian Arctic river basins.

Two key strategic documents by the Russian Government, the Water Strategy of the Russian Federation for the period until 2020 and the Strategy for Socio-economic Development of Siberia for the period until 2020, approved in 2009 and 2010, respectively, define the priorities and key interventions in the water sector when it applies to the Russian Arctic. Both strategies are designed to take into account priorities defined in the concept of long-term socio-economic development of the Russian Federation for the period until 2020 approved by the Federal Government Executive Order of the Russian Federation in 2008. The Water strategy identifies key actions for the development of water resources in Russia ensuring sustainable water use, protection of water bodies, protection against the negative effects of floods and drought. It recognises the importance of promoting an integrated water resources management and basin-wide implementation approach. It proposes a range of legal, administrative and investment priorities to assure sustainable use of water resources and watershed protection. While most of water in Russia is a state property and many of management decisions are taken at the federal level, Water Strategy aims at higher decentralization of decision-making powers from federal to the regional and municipal level where applicable. The Strategy for socio-economic development of Siberia highlights the importance of Siberian rivers as transportation routes connecting regional economies with the developing marine infrastructure, specifically associated with the Northern Sea Route. The importance of assuring ecological safety and

reducing threats from floods and other climate change-related impacts are emphasised in this Strategy.

The project is also consistent with the Russian Federation NBSAP (2001) and fits within the National Action Plan to support CBD. These national plans propose that polar deserts, tundra, and forest-tundra regions in the Arctic parts of the Russian Federation adopt integrated approaches to nature management, with the full involvement of indigenous peoples. The NBSAP in particular highlights the importance of adopting an ecosystem approach, including implementation of regional models of biodiversity conservation and integrated land use planning. By implementing governance models based on the IWRM principles under this project, and through exchange of experiences of the analysis, assessment, and use of relevant policy and regulatory tools and mechanisms, national capacity for reviewing and updating of the existing national biodiversity strategies and action plans should be reinforced. Integration of biodiversity concerns into relevant sectors, particularly the water sector, will be accelerated. National strategies for conservation of rare and endangered species adopted priority actions for conservation and sustainable use of the Russian coastal and associated peatland habitats and resources.

Concerning the transboundary issues and potential cooperation on the Pasvik river basin, the Ministers of the Environment of the Barents Euro-Arctic Council (BEAC) comprising of Denmark, Iceland, Finland, Norway, Sweden and the Russian Federation, agreed at its Seventh Meeting in Rovaniemi on 19 October 2005 that cooperative efforts would be needed to create a representative network of nature conservation areas in the Barents Region and encouraged a further development of the existing and planned cross-border protected areas networks, such as the Green Belt of Fennoscandia, including, *inter alia*, the trilateral nature conservation cooperation in Pasvik-Enare. The BEAC also recognised a need to improve management and capacity of the countries to protect biodiversity in the existing protected areas, and to engage in nature conservation, encouraging efforts and cooperation on the transboundary water systems as well as the establishment of water basin management. In 1992 and 1994, bilateral agreements were concluded between Norway and the Russian Federation on Cooperation in Environmental Matters, pursuant to which the Joint Norwegian-Russian Commission on Environmental Protection operates.

B. PROJECT OVERVIEW:

B.1. Describe the baseline project and the problem that it seeks to address:

The Arctic Ocean receives about 11% (about 4,300 km^3) of the world's total river runoff. Amongst the major drainage basins of the principal oceans and seas of the World, the Siberian Arctic river basins cover almost 10 per cent of the Earth's land surface (14,894,000 km^2). The largest flow discharges are observed in the Lena, Yenisei, Ob', Mackenzie and Northern Dvina, with the first three being among the world's ten largest rivers.

Possible scenarios of climate change in the 21st century obtained through the model calculations and analysed in the Arctic Climate Impact Assessment Report (released in November 2004 by the Arctic Council and the International Arctic Science Committee - IASC) projected the total increase in Arctic river runoff by 10 to 20%, or 300-400 km^3 and winter runoff by 40-50% a year by 2050. Increase in freshwater runoff from the rivers running into the Arctic Ocean has substantial impacts on its physico-chemical characteristics such as decrease in water salinity, especially in the coastal areas, increase in average water temperature and changes in the sea current patterns. Taking into account that the Arctic Ocean plays an important role in the formation of the global climate, changes in physico-chemical properties of water would have

strong impacts on the climate in the other regions of the World, particularly in Northern Europe. The changes in the physico-chemical characteristics of the water mass of the Arctic Ocean, primarily through the change in the salinity of marginal seas, and the change in the hydrological conditions of the estuarine areas would significantly affect biodiversity and ecosystems in marine, coastal and estuarine as well as catchment areas.

An increase in the water content of Arctic rivers and change in their ice conditions and an increase in frequency of catastrophic floods and flooding events both directly influence the transport of pollutants and materials by rivers and their discharge into the Arctic Ocean. Suspended sediments in the river waters transporting pollutants/materials will be widely spread in coastal areas of the adjacent seas along with the increase in water flow of Arctic rivers, extending the area of possible pollution. Intensive development activities such as oil and gas exploration, navigation, fishery, mining operations, water and hydraulic engineering, industrial and civil construction, transport of freight by winter roads are implemented in the Arctic river basins, estuaries and coastal areas of the Arctic countries.

The Arctic river basins also include the permafrost where large amount of carbon is stored. Most permafrost was formed during the cold glacial periods, and they remained throughout the warmer interglacial times over the past 10,000 years. The Arctic permafrost contains 950 gigatonnes of organic carbon within the few metres of permafrost surface layer as compared to some 750 giga tonnes of organic carbon the atmosphere currently contains. With the warming trend in the Arctic, the stored carbon in the permanently frozen organic matter buried in the permafrost could gradually melt with greenhouse gases emitted into the atmosphere and exacerbating climate change through the positive feedback loop. The climatic conditions and ground temperatures are the major factors affecting permafrost thickness and stability. It is assessed that, on average, permafrost was warmed by up to 6°C during the 20th century. Increased concentration of CO_2 in the atmosphere between now and 2100 are expected to stimulate plant growth in the tropics, leading to a projected intake of approximately 160 Gt more carbon by photosynthesis. However, the research by Schaefer and others (2011) suggests that by 2100, the release of carbon from thawing permafrost (104 ± 37 Gt) is enough to cancel out much of that carbon sink. This increased CO2 released by permafrost is not factored in most of the climate change projections. Widespread degradation of permafrost will change hydrologic processes and cycles, and trigger erosion or subsidence of these ice-rich landscapes, leading an increased incidence of natural hazards to people, downstream ecosystems, structures, roads and communication lines.

The large Siberian Arctic rivers, including Northern Dvina, Pechora, Ob, Yenisei, Lena, Indigirka, Yana, and Kolyma, are subject to the impacts by climate variability and change. The effects will include extreme flooding, coastal erosion, increased pollutant and sediment fluxes to coastal areas and Arctic Large Marine Ecosystems (LMEs), and changes to river and catchment ecosystem structure and functions. Further melting and degradation of the catchment permafrost would lead to modified hydrological cycles and increased release of stored carbon under the permafrost. Most of the above environmental challenges have transboundary implications. While predicting climate change impacts is highly complex, some studies suggest that combination of these factors may cause dramatic changes to Arctic Ocean circulation and regional climate, flux of pollutants, increased emission of green house gasses, and impacts on Arctic rivers and their catchment ecology and hydrology while affecting the quality and productivity of rivers and streams, biodiversity and habitats, growth, and survival of freshwater aquatic species that are currently used for food by Arctic residents. The lack of knowledge about these large-scale processes in the Russian Arctic river basins significantly delays decision-making at the national as well as international level to attempt to address such fundamental ecosystem challenges.

Implementation of the Water Strategy and the Strategy for socio-economic development of Siberia both should utilise the principle of private-public partnerships and to be largely supported through respective federal targeted programmes. Two federal targeted programmes are developed to support priorities identified in the Water Strategy, Federal Targeted Program (FTP) "Development of water resources sector in the Russian Federation during the period of 2012-2020" and FTP "Clean Water 2020". These two projects constitute two main baseline projects. The first aims to invest about 520 billion RUR (or 17.5 bln USD) over the period until 2020 including about 60% of resources coming from the federal budget (FTP is about to be started in 2012). Both FTPs will support implementation of water policies at the basin and sub-basin levels. One of the submitted basin programs under the FTP is for the Lena River basin and will be implemented through an appropriate Basin Council. Strategic interventions in both FTPs are aimed at:

- Strengthening of water policies and IWRM frameworks and improved capacity building;
- Introduction of market instruments including payment for water use and quotas;
- Strengthening legal and administrative support for IWRM;
- Support of innovative practices and knowledge products; and
- Infrastructure improvements addressing risks from floods and etc.

FTP has several specific impact indicators such as reduced exposure of population to floods and droughts, reduced flux of contaminants, construction of infrastructure against floods to cite a few. Specific investments envisioned in both FTPs aimed at IWRM of the Arctic Rivers in support of baseline activities will be identified and calculated at the PPG stage.

In this proposed project, the Lena River basin in Sakha Republic, the far north of eastern Siberia, is selected as a pilot basin to introduce the Integrated River Basin Management approach to achieve improved river basin management schemes, addressing biodiversity concerns in addition to achieving water resources related benefits. The Lena River, which is the longest undammed river in Asia, flows north through Siberia and Far Eastern Russia for about 4,300 km to the Arctic Ocean. At its mouth where water empties into the Laptev Sea in northern Siberia, the river forms a large delta that extends 100 km into the Laptev Sea and is about 400 km wide, which makes it the largest Arctic delta and the most extensive protected wilderness area in Russia (expanded in 1995 to cover a total area of 61,000 km2) and one of the 200 global Ecoregions prioritised by WWF. The delta is a frozen tundra for about 7 months of the year, but in May is transformed into a wetland for the next few months. The Lena River and its delta host many nature reserves, including the Lena Pillars, Beloozersky, Belyanka, Muna, Ust-Viluisky, Lena Delta Nature Reserve, and Ust-Lensky nature reserve. There is also an International Biology Station, Lena-Nordenskiöld, on the Bykovskaya channel. The whole of the Lena Delta area has been nominated as a UNESCO World Heritage Site, whereas the part of the area is protected as the Lena Delta Wildlife Reserve. The Lena river banks are a habitat for many rare species of medical herbs in Yakutia. There are many endemic species of herbs, such as *Redowskia sophiifolia*, *Ceratoides lenensis* (*Eurotia lenensis Kumin*.), *Taraxacum lenense Tzve*l. (dandelion), and *Oxytropis karavaevii Jurtz*, which grow only in the valleys along the river. The river is also a home for about 70 % of rare bird species of Yakutia. Black crane is one of the species close to extinction. The endangered species include black brant and pilgrim-falcon. The Lena Delta Wildlife Reserve is a Zapovednik ("scientific nature reserve") that has a total land area of 61,000 km^2 making it the largest protected area in the Russian Federation. The reserve area protects large concentration of birds, including swans, geese and ducks, loons, shorebirds, raptors and gulls. It is also an important fish spawning site.

The Lena Delta Reserves and their ecosystems are particularly threatened by climate induced changes and increasingly by human activities, particularly over-fishing. Downstream of the reserve areas, mining, forestry, grazing, expanding agricultural activities, water diversion for

irrigation, and pollution from fertilizers and pesticides may threaten the water quality and quantity that reaches the delta. Arctic tundra wetlands are highly sensitive to climate variability and change. Since climate models predict changes in a warming Arctic, considerable impacts on these wetlands are expected. While the assessment of landscape and seascape changes in the Lena River Basin and deltas through detailed analysis of land cover, peri-glacial geomorphology, and other surface properties is conducted, the scale of consequences of climatic changes in the terrestrial ecosystems is currently difficult to evaluate with current level of capacity for such assessment.

Due to severe climate conditions in the Lena catchments area, its flow is extremely variable. Up to 35% of the annual discharge is formed during a few weeks of spring flooding. In recent years, the floods were more extreme and have occurred earlier in the season. As part of the Russian State Observation System, a long-term hydrologic and meteorological network is operated in the basin. While data were collected, analysis and presentation of the data did not lead to informed policy decisions.

In 2003-2005, Russian Federation implemented one of the largest regional projects of the Global Dialog on Water and Climate (DWC) - "Dialog on Climate Change Adaptation Strategy in Water Management and Flood Preparedness at the Lena Basin". This project identified some specific climate adaptation issues for water-related sectors of the Lena River basin and made some valuable assessments of climate change impacts. The project, however, did not provide a global perspective on the role of Arctic rivers on the formation of hydrological regime of the Arctic Ocean and on the Arctic regional climate patterns. Very few on-the-ground capacity development initiatives have been undertaken in regard to climate-related impacts on the Siberian Arctic rivers. More efforts at the river basin level are necessary, building upon the current experiences obtained by the DWC project.

During the recent years, the Republic of Sakha (Yakutia) has undertaken a number of measures directed at integrated water resources management of the Lena River basin. The Republic has developed the Recommendations on Climate Change Adaptation Strategy in Water Management and Flood Preparedness in the Lena Basin. Specific recommendations are the proposed responses to the changes in water conditions of the river basins due to climate change, the size of flooded zones during spring, the list of affected settlements and infrastructure as well as the recommendations for modified regulation of the facilities controlling river discharge and municipal and industrial water supply. However, the efforts has just been started, and the other factors, such as impacts of changing hydrological schemes on the coastal waters and the basin ecosystem functions, and biodiversity and ecosystem services in the basin, need to be taken into consideration. To effectively manage the water system as a whole, these concerns should be brought together into a well-planned IWRM/IRBM for sustainable water security in the Lena River Basin.

The Pasvik River, located in Pechengsky District of Murmansk Oblast, with the only waterwork facility in the Arctic, has potential for transboundary cooperation in the management of water resources and waterworks as well as transboundary river basin management, taking into account biodiversity and ecosystem balance. The Pasvik (or Paatsjoki in Finish) basin is shared among the three Arctic countries: Norway, Finland and the Russian Federation. The main river rises in Lake Inari in Finland and discharges into the Arctic Ocean. Along its course it forms the national border between Norway and Russia and possesses a number of hydroelectric plants. The bilateral transboundary water commissions operate based on the agreements between the respective governments: The Finnish-Norwegian Transboundary Water Commission, the Finnish-Swedish Frontier Rivers Commission that will be soon replaced by a new advisory committee, and a Joint

Finnish-Russian Commission on the utilization of Frontier Waters. All these commissions apply a basin-approach to water management and have a long history of bilateral cooperation. The Pasvik district consists of catchments discharging to the Arctic Ocean, which will require collaboration among Finland, Norway and Russia beyond the existing bilateral cooperation.

In 2007, a joint research effort was conducted to assess and evaluate the state of the environment in the Pasvik River Basin, and to develop harmonized monitoring methods for assessing major threats to the environment, posed by the Pechenga-Nikel industrial complex, where copper and nickel ore had been excavated and processed for over 70 years by the three countries in the border area. As a result of this study, a joint trilateral environment monitoring programme, among other activities, was recommended.

There is also an ongoing Norwegian-Russian wetland cooperation across the border on the potential to unite the Russian Pasvik Zapovednik and the wider Norwegian National Park and Landscape Protection Areas into a Transboundary Ramsar Convention Site. However, there is also an opportunity to consider the Vätsäri Wilderness Area with an upstream Lake Inari and the Sámi cultural heritage sites to form a possible Trilateral Ramsar Site. With the financial support from the European Union INTERREG programme, the promotion of nature protection and sustainable nature tourism in the Pasvik-Inari Trilateral Park area has already started (www.pasvik-inari.net).

While there are multiple bi-lateral and tri-lateral efforts in the basin, a range of important governance barriers remain that have to be resolved in order to introduce and start implementation of the transboundary IWRM plan for Pasvik Basin by linking the work of bilateral commissions of riparian countries for the benefit of environment, economies and society. This project aims to start addressing those barriers.

While the pilot basins of the project (Pasvik and Lena rivers) are geographically distant, project components, however, are logically linked to serve the main project objective of assisting the Russian Federation in building technical, legal and institutional capacity, including human capacity, for Arctic-wide adoption and subsequent implementation of IWRM plans in the basins of large Siberian rivers under the changing climate conditions. These efforts lead to sustainable delivery of ecosystem services and the reduced negative impacts on Arctic LMEs by climate-induced and human-driven drivers for change. The objectives and outcome of the project will be achieved through the following three components:

Component 1. Assessment of climate change impacts on runoff, ice regime, and permafrost melt in the basins and deltas of Siberian rivers and Arctic Ocean circulation to inform climate-resilient development of IWRM strategies in the Russian Arctic and Arctic LME management.

Component 1 deals with the modeling of hydrological conditions of large Arctic rivers basins and calculation of water circulation of the Arctic Ocean and adjacent seas. The modeling will be based on a hydrometeorological database specially created for this purpose, and will take into account the results of global and regional atmospheric models. This modeling exercise will result in obtaining runoff fluxes of the Arctic rivers into the Arctic LMEs, changes in their ice regime characteristics as well as environmental conditions in the estuarine areas and adjacent Arctic seas for the medium (2020) and longer (2050) terms. A number of parameters will be evaluated for terrestrial and coastal permafrost degradation and its impacts on the hydrological regime and increase of river runoff. Within the framework of Component 1, the impacts of changing hydrological cycles on the ecosystem functioning including biodiversity will be assessed and forecasted. The component will provide estimates of changes in transport and accumulation of persistent toxic substances to the Arctic LMEs caused by changing hydrological conditions of large rivers and permafrost degradation. Potentially, the assessment of carbon release with melting permafrost will be carried out. The above information would allow for the development of ecosystem vulnerability maps for the major river basins (Northern Dvina, Lena, Ob and

Pasvik) with the identification of ecosystem hotspots. Given the utmost importance of this information for environmental decision-making and governance in the circumpolar Arctic, the project will distribute widely the results of this component activities among several Working Groups of the Arctic Council and nationally. The results will also be incorporated into the process of updating the SAP-Arctic. It will also be an important contribution to IW:LEARN knowledge network, informing the other IWRM projects in the areas with melting ice and climate-induced hydrological changes.

Component 2. Developing IWRM/IRBM strategies and plans for the Arctic rivers facing climate change

This Component develops strategic measures to maintain functioning of water flow systems and minimise the impact of changes in the water regime on freshwater, estuarine and marine ecosystems and quality of life including the traditional lifestyle and livelihood of indigenous communities. This component will use the results of Component one focused on ecosystem health, economy and human populations in the Arctic river basins. It has strong federal focus aiming at strengthening legal and institutional capacity for IWRM in the Russian Arctic and beyond. This will be achieved through close co-operation with other Arctic river basins with experiences of IWRM practices, such as those in the Mackenzie (USA, Canada), Yukon (Canada) and Northern Norwegian rivers. A platform of river basin managers and practitioners in the Arctic countries will be established to share the experiences of assessment and management of Arctic river basins, in particular the results and experiences from transboundary management of the Mackenzie and Yukon Rivers and the rivers of Northern Norway. A Russian Arctic wide strategy for IWRM river basin management will be developed through the platform. The principles of the Integrated Coastal Area and River Basin Management (ICARM) will be brought into discussion in close co-operation with the activities envisaged in Project 1 of the AA2020 that will work on the similar federal strategy for Integrated Coastal Management. Priorities and recommendations of the IWRM strategy will be used in developing and updating socio-economic development plans for Arctic regions and other strategic documents of the Russian government in order to ensure mainstreaming of IWRM principles and measures into development strategies and as such financial sustainability.

Component 3: Development and initial implementation of IRBM plans for the Lena and Pasvik river basins based on best available international knowledge and support

The higher incidences of catastrophic floods and permafrost degradation associated with the warming trend in the Arctic have serious impacts on water management, infrastructure development and operation, and social conditions or livelihoods of indigenous peoples in the basins of Arctic rivers. Floods associated with melting ice in the Lena River Basin are expected to double by 2015. The Lena basin is selected as a pilot site because it is the only Arctic river basin where the regional government has already undertaken a number of measures based on the IWRM principles. The accelerated climate-induced changes in the basin make the application of IWRM principles for Lena River management as an urgent task as recognised by federal and regional authorities. While the Lena River is lacking a Basin Council, a substantial part of water management activities is implemented by Lena River Basin Water Authority that will be a main partner in implementing this project component. Within the framework of the Global Dialogue on Water and Climate project implemented in 2003-2005, the Republic has developed preliminary recommendations on climate change adaptation strategy in water management and flood preparedness at the Lena basin. Specific recommendations were given for mitigating the

risks of flooding and reducing the areas inundated in spring and upgrading the facilities regulating river runoff and possible other measures for effectively coping with the changing hydrological regimes.

The Pasvik River basin is shared by three Arctic countries, namely Norway, Finland and Russia. The development of an IWRM/IRBM plan for the Pasvik river basin will pilot and facilitate transboundary cooperation for management of water resources in the Arctic.

This component will focus on removing technical, legal and institutional barriers for the development of IWRM/IRBM plans in the Lena and Pasvik river basins, taking into account climate variability and change. Technical support will focus on bringing together long-term scientific and monitoring data, developing vision and setting goals, setting environmental quality objectives and priorities, and filling gaps in the existing legal, institutional and technical capacities. The project executing agencies will work together with key stakeholders in strengthening the existing water management framework to form new governance structures conducive for IWRM management. These efforts will lead to the development of IWRM plans for two basins. For the Pasvik river basin, developing not only a national IWRM plan harmonized with IWRM plans of riparian countries (Finland and Norway), but a transboundary IWRM plan for the Pasvik river basin will be pursued. Feasibility of developing a transboundary IWRM plan will be explored at the PPG stage. For the Lena river basin using an experience of the Lena Maritime Board, the project will explore linkages between IWRM and ICM frameworks moving towards the ICARM approach. Finally, the component will aim at identifying most critical demonstration projects supporting IWRM implementation that will be further developed during PPG. Initial consultations suggest that for the Lena River Basin this might be measures aimed at food preparedness and control as the most urgent priority, while for the Pasvik river there might be interventions aimed the reduced pollution from point and non-point sources. The component will also include awareness raising and capacity building activities as well as dissemination of knowledge and lessons.

The project builds strongly on the results and lessons learnt during the implementation of the UNEP/GEF project ECORA: An Integrated Ecosystem Approach to Conserve Biodiversity and Minimize Habitat Fragmentation in the Russian Arctic, funded under the former Operational Programme 14: Integrated Ecosystem Management. While there were and are other ongoing GEF-funded initiatives in the region aimed specifically at biodiversity conservation, the ECORA project is the closest in its goals and delivery mechanisms to the proposed project. ECORA was using an integrated ecosystem management (IEM) approach to conserve biodiversity and minimize habitat fragmentation in three selected model areas in the Russian Arctic. The Model Areas selected for ECORA were: Kolguev Island in Nenets Autonomous Okrug, the Lower Kolyma River Basin in Yakutia (Sakha Republic), and the Beringovsky District in Chukotka Autonomous Okrug. ECORA helped to secure the integrity of some of the world's last remaining pristine areas and support livelihoods of indigenous and local peoples. Application of the IEM approach in these model areas revealed that the IEM approach can be applied to a wider river basin with consideration of water and water disaster related benefits. The application of the IEM to river basin management proved to be effective in the UNEP/GEF OP-14 project for the upper Yangtze River basin in China. The ECORA project is completed and recently CAFF, Arctic Council WG on biodiversity, published a report summarising lessons learned from this project (CAFF Monitoring Strategy Report nr. 4, May 2011: Lessons Learned from ECORA). The report, *inter alia*, stressed the importance of strong support from local and regional administrations to project sustainability. This support can be reached only through mainstreaming of local interests and coordination of IEM goals and tasks into social and economic development strategies and policies, including those related to water resources and river basin management. The report concluded that being one of the first of its kind in Russia, ECORA experienced some

of the same challenges as IEM initiatives elsewhere:

- The difficulty in changing traditional top-down management and delegating power to local peoples and their institutions;
- The skepticism of local institutions towards governments and bureaucracies;
- The varying capacity of interest groups and stakeholders to influence decision-making.

The ECORA experience underscores the need to adopt an approach of IEM in an incremental fashion, with a number of intermediate objectives to demonstrate progress and keep all parties engaged. Ultimately, flexibility and adaptive planning are crucial. The proposed project that aims to mainstream international waters and biodiversity benefits into IWRM and socio-economic development strategies of respective regional administrations will take forward ECORA experiences, particularly from Lower Kolyma River Basin. One of the ECORA model areas was in Yakutia (Lower Kolyma) and it was probably the most successful model area of the project in moving IEM approach forward. The Lena River basin is largely located in the Republic of Yakutia and project will use established technical and institutional capacity and trust of regional authorities in bringing biodiversity issues into IWRM plan for this basin. Further there are a number of GEF projects in the biodiversity focal area, focusing on protected areas as listed in Section B.6 below. The protected area management and sustainable use of associated ecosystem services will be incorporated into the IWRM/IRBM strategies and plans.

During the project preparation phase, specific indicators will be defined to measure the results and success of the development and implementation of the IWRM/IRBM plans, taking into consideration biodiversity conservation and sustainable use of ecosystem services in the basins, and implication of changing basin hydrological schemes on the functioning of the transboundary coastal ecosystems. The earlier defined indicators and the methodologies for setting baselines for the IEM projects should be useful in this project. Particularly preliminary baseline studies in terms of primary ecosystem services in the two pilot river basins, such as carbon storage/sequestration, nutrient cycle, runoff control, biodiversity protection, will be carried out during the PPG phase.

B. 2. Incremental / Additional cost reasoning: describe the incremental (GEF Trust Fund) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

The baseline situation as described in Section B.1 shows that regional and local level water management activities are ongoing and sustained by regional and local administrations. It becomes evident through the assessment activities by regional and local that hydrological cycles are modified by the climate-induced drivers and human activities, affecting not only the water availability and quality, but also the status and quality of the Arctic Large Marine Ecosystems, flooding schemes, carbon cycles as well as the functioning of and services provided by the basin ecosystems. The modification of the hydrological regimes caused by climate change and variability, industrial activities, land use change and water facility operations have implication for improved water and river basin management. The current water resources management framework in the Russian Arctic does not sufficiently address the need to adapt to the changing hydrological schemes and their impacts on the important basin ecosystems and further the ecosystems in the Arctic LMEs as well as transboundary implications of these changes.

Under the Business-as-Usual scenario, the efforts of Russia and the international community will implement the water specific strategies and activities in support of the national and regional water strategies. Such efforts will focus on specific geographical areas and sectors, without due consideration to other possible benefits that an integrated ecosystem management approach to river basins can generate, such as biodiversity related benefits and coastal ecosystem related

benefits. Under the business as usual scenario, the sustained efforts would lead to limited effectiveness of integrated environmental governance systems in the Russian Arctic river basins. In other words, the national policies and resources would be primarily directed towards responding to the most urgent needs such as mitigating negative consequences of floods for the population and occasional pollution sources. There would be a continuing divide between water policies at the federal and regional levels with limited financial support going into integrated water resources management as part of sustainable development and ecosystem-based strategies. The importance of the Arctic rivers in regulating hydro-chemical regime and pollutant fluxes into the Arctic LMEs will not be highlighted and the urgency of water related threats to significant ecosystems in river basins in the Russian Arctic would not be recognised at the federal and international levels.

Under this scenario, experiences gained in the implementation of the past IWRM projects in Russia (such as those supported by the GEF for Peipsi/Chudskoe Lake, Baikal Lake, Volga River basin, Dnieper river basin, Danube/Black Sea) would not be appropriately used or applied to the Russian Arctic river basin management, including the transboundary river basins shared with the neighbouring Arctic countries. Transboundary co-operation between circumpolar and EU countries on the support for IWRM will remain focused on specific regions, severely under-funded and remain very much donor- driven. Internationally recognised tools and methods of ICM and integrated water resources management (including ICARM) will not be adopted for the Arctic region with negative consequences for the local and global environment. The above risks are compounded by the increasing impacts of climate change in the Russian Arctic outpacing the rate of ongoing governance reforms. Further experiences of the important experiences of applying the IEM approach would not be incorporated into the river basin management schemes. All the above factors are leading to reduced delivery of multiple environmental benefits as well as negatively impacting circumpolar co-operation in the Arctic.

Under the alternative scenario with the proposed GEF financing, the Governments at regional and federal levels could introduce and incorporate into the current water management, integrated river basin management approaches and principles, allowing also to address changing hydrological cycles and to protect and sustainably use the globally significant biodiversity and ecosystem services in the catchment areas. As identified in Section B.1 above, the important biodiversity areas and associated ecosystem services are threatened by changing hydrological cycles. By introducing an ecosystem-based integrated river basin management plans and activities, water related and catchment related threats to these important areas and ecosystems will be addressed. Through the GEF intervention, the river basin management and water sector in the Russian Federation, particularly the authorities in the Arctic regions should be able to transform their policies in the manner that they could address domestic water related concerns as well as global environmental concerns such as basin ecosystems, transboundary marine issues and mitigating impacts on the coastal areas by changing hydrological events.

The proposed project could meet the needs to address transboudnary waters issues and biodiversity concerns by supporting and incorporating assessment of climate change impacts on runoff, ice regime, permafrost melt, and ecosystem services in the selected basins of the Siberian rivers and Arctic Ocean coastal zone; as well as by climate-resilient and ecosystem based IRBM in the Lena River Basin and its deltas. The project will build national and regional capacity for planning large-scale interventions to addressing climatic variability and change including ice and permafrost melt in the river basins and water-related sectors, as well as to achieving sustainable management of ecosystem flows/functions/services, in Siberian Arctic.

To up-scale these initiatives on water resources management and biodiversity conservation in the

Siberian river basins, linkages between the science of ecosystem changes and federal, regional and local decision-making in the Russian Arctic would be pursued. Further, policy, institutional and capacity building efforts linked to IWRM/IRBM would be developed to make IWRM a central and widely acceptable water resources governance tool in the Russian Arctic. Opportunities for utilising international expertise, knowledge exchange, resource mobilisation among circumpolar partners through GEF catalytic role would be explored. A critical momentum created by the AA2020 programme aimed at setting up environmental governance system and its mainstreaming into socio-economic development in the Russian Arctic with due attention to water resources management would be lost without the GEF project.

The project is expected to deliver a range of global environmental benefits, based on the better understanding of the inter-dependence of upstream and downstream physiochemical, biological and economic drivers in the basins of Russian Arctic rivers and their cumulative impacts on the environmental status of Arctic LMEs. Through support of IWRM policies and plans at the federal and regional level, it is expected that not only transboundary fluxes of contaminants to the Arctic LMEs, but also negative impacts on globally significant biodiversity spots, particularly through the changing hydrological regimes will be reduced. The project will generate unique knowledge and experience in developing climate-resilient strategies and plans for IWRM adopting an ecosystem based approach, as well as provide globally significant data on the impacts of Siberian rivers on thermohaline circulation of adjacent Arctic LMEs. The project should establish strong foundational support for the further implementation of IWRM in the Russian Arctic and country-wide framework as the main framework for sustainable use and conservation of freshwater resources. It will also lead to a range of socio-economic benefits for economies and society including indigenous communities (see B.3).

B.3. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF). As a background information, read MainstreamingGenderattheGEF.":

Water is a key resource for human beings and their productive activities, such as industrial development. This resource is closely linked with the socio-economic conditions for the local population. In this project, in order to generate the water related benefits for the population in the Arctic river basins, ecosystem services offered by the basin ecosystems will be used in a sustainable manner. These services are closely linked not only with water supply, water quality and flood control, but also with provision of materials and foods from the river systems. By introducing the integrated river basin management approaches, the project will lead the local population accessing the water resources in an equitable manner. The Arctic river basins are populated by the indigenous peoples of the North, who are considered as one of the most vulnerable groups of population on the Earth, particularly vulnerable to climate variability and change. This is due to the fact that their traditional way of life is intricately connected with ecosystem services. Changes in the water regime of rivers, estuaries and adjacent ecosystem services strongly impact their lifestyle and basin ecosystem services closely linked with their economic activities such as reindeer herding, fishing and others. The Arctic river basins comprise important ecosystems that are unique, fragile and vulnerable to changes. These ecosystems include permafrost, Arctic tundra, taiga forests, and grassland. The project aims to ensure that terrestrial and coastal ecosystems in the basins of Arctic rivers continue to provide essential ecosystem services and economic benefits within sustainable development framework.

The project will utilise highly participatory approach in all its components, particularly in strengthening institutional frameworks for IWRM in the Lena and Pasvik river basins. The role of women will be emphasized and special attention will be paid in engaging women in basin-level decision making and IWRM implementation processes.

B.4 Indicate risks, including climate change risks that might prevent the project objectives from being achieved, and if possible, propose measures that address these risks to be further developed during the project design:

The SAP-Arctic indicated a number of risks associated with the integrated environmental management of the Russian Arctic. One of them is more frequent and intense flooding, runoff, and inundations that will increase the amount of pollutants released into the river and marine systems. The thawing of frozen ground and more active thermal erosion of shorelines will raise the likelihood of accidents at pipelines and other elements of the economic and social infrastructure, which together with the development of shipping, tourism, and oil and gas extraction will increase the risk of polluting new land and sea areas. The increase in storm activity will heighten the risk to shipping and other maritime activities on the continental shelf. The project has already incorporated the climate change and variability in its design and the proposed IRBM/IWRM approach will fully consider the impacts of the climate change and variability on the water resources and ecosystem management, and lifestyle and livelihood of local population.

Identified Risk	Likelihood/Severity	Proposed risk management measures
inadequate understanding of the important of ecosystem integrity and the need to incorporate environmental considerations into development policies and activities	L	Although the political attention to the Arctic development issues has been heightened in Russia, in order to raise the awareness if the political community on the environmental issues, the project will have activities on awareness raising, particularly at the two pilot basins.
inadequate political will or capacity of key administrative and jurisdictional players/stakeholders, preventing wide participation of the stakeholders in the basin-wide planning	L	Through the pilot IRBM planning process, the project will mobilize a wide range of stakeholders and a formal stakeholder mechanism will be establish, such as a basin committee.
inadequate awareness and capacity building efforts to develop and maintain a good level of stakeholder ownership and cooperation mechanisms essential for integrated management of the river basins	L	Through the platform of the river basin practitioners, necessary information and experiences from the other Arctic river basins could be mobilised for building necessary awareness and capacity for integrated river basin management.

Weak understanding or low-level of stakeholders' awareness on the necessity to mainstreaming biodiversity and climate resilience concepts and measures	L	Dedicated training and information dissemination through Internet and media on adaptation concept to changes will be provided as part of all project components.
Insufficient network of stations to monitor climate change and hydrological conditions in the Arctic regions. Insufficient or low quality of existing data and information for addressing issues requiring transboundary cooperation	M	Project will establish dedicated database and regional GIS system. Additional data will be collected from regional institutions. Observations of Arctic indigenous communities will be synthesised and integrated.
Lack of adequacy global atmospheric models that can be used to improve climate impact forecasting at the river basin level. Uncertainty of scenarios for world economy development used to assess greenhouse gas emissions	M	Various scenarios of the development and global change impacts, i.e. mean annual air temperature, precipitation, etc. will be developed to propose managerial options in the regions.
Inadequate interest and political willingness to support replication to use project results and practices in other Arctic water systems	L	The project will work closely with international scientific community through AMAP and other Arctic Council Working Groups and networks for replication purposes. Project ownership by the Ministry and Roshydromet will assure replication of the project efforts in other Arctic and sub-Arctic regions.

B.5. Identify key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable:

UNEP is the GEF implementing Agency for the project. UNEP GPA Coordination office will provide technical support and inputs into the development of ecosystem-based river basin management, which is closely linked with the coastal zone and delta management.

The Ministry of Natural Resources and Ecology and the Russian Geographic Society will be the key Russian executing partners of the project.

Roshydromet (Federal Service for Hydrometeorology and Environmental Monitoring), Government of Sakha Republic, Government of Murmansk Region, the Polar Foundation and selected research institutes and universities, environmental NGOs and companies will participate in the project as partners.

The project will be implemented in close cooperation with the scientists and specialists from USA, Canada, and Scandinavian countries, as well as Arctic NGOs including WWF and the Polar Foundation, working on similar issues and coordinated via Arctic Monitoring and Assessment Program (AMAP) of the Arctic Council. It is proposed that the project be designated as an official AMAP project giving it international recognition, visibility, and assure further replication and use of its results in the circumpolar Arctic region.

The Arctic Monitoring and Assessment Programme (AMAP), a programme group of the Arctic Council, coordinates the Arctic monitoring and research activities (based largely on national programmes) to provide the information necessary for assessment of relevant issues, including: spatial trends in the levels of contaminants; temporal trends in the levels of contaminants; biological effects of contaminants and associated trends; climate change; effects of climate change; human and ecosystem health effects; combined effects of contaminants, climate change and other stressors. As part of its 2011-2013 Work Plan, AMAP will continue to evaluate emerging 'Issues of Concern' relating to pollution and climate change and their effects of Arctic ecosystems and human populations. More specifically, AMAP is participating in the further development and implementation of special projects in Russia, including the project on the Lena and other Siberian rivers, and follow-up of the PTS (Persistent Toxic Substances) project.

The Polar Foundation, founded by a group of scientists and Association of Polar Explorers of Russia, was established with the aim of providing a cooperation framework for the integration of financial, material and intellectual resources to solve scientific, social, cultural, educational and charitable issues of exploration and development of polar lands. In 2002, Polar Foundation in cooperation with Roshydromet developed a Programme of recovery of main and benchmark polar stations which were closed down in the 1990's. The Programme is being implemented in cooperation with the National Science Foundation. A key activity concerning the Siberian Arctic river basins involving the Polar Foundation (with Roshydromet's State Hydrological Institute, RAS Institute of geography, Lena Basin Water Management Authority of the Ministry of Natural Resources, Ministry of Civil Defense and Emergency Situations of the Republic Sakha (Yakutia), and Mining Institute of the North, Siberian Branch of RAS as key executors) has been the AMAP/Dialogue on Water and Climate Project "*Dialogue on climate change adaptation strategy in water management and flood preparedness at the Lena basin*" 2002-2003. The project implementation resulted in the assessment of changes in the Lena runoff in the periods of 2010-2030 and 2030-2050. Under the Dialogue initiative, the following

recommendations have been made: adaptation of the water-economic complex to probable changes in the river hydrologic conditions in the nearest decades; measures to decrease severe ice block flood danger; and developing ice block phenomena monitoring.

The Russian Geographical Society (RGO) is a Russia's public organization founded in 1845. Recently the society has actively participated in solving the most important problems in exploring and developing the Arctic. RGO is the organizer of the annual International Arctic Forum "Arctic – Territory of Dialog" that became the largest Russian discussion platform concerning the cooperation in the Arctic Region. RGO has been assigned the coordinator of the technology platform "Environmental Development Technology", whose main goal is to create the mechanism of improving efficiency and competitive capacity of the Russian Federation economy based on the coordination of efforts by the science, State, business and society aimed at implementing environmentally and energy-efficient Russian know-how, solving cumulative environmental problems and ensuring environmental security.

Regional Governments, in which pilot IRBM activities will be implemented, primarily the Republic of Sakha (Yakutia) and Murmansk Region, are interested in practical results of the project, first in the development of IWRM plans for the selected river basins.

Thus, the recommendations given to the Republic of Sakha (Yakutia) Government based on the Project "Dialogue on Climate Change Adaptation Strategy in Water Management and Flood Preparedness at the Lena Basin", in the implementation of which the Republic's Government had actively participated, were accepted for execution, allowing to reduce to a certain extent of flood damages and losses.

RAIPON is a Russia's public organisation that has as its main goal to protect human rights, defend the interests of indigenous peoples of the North, Siberia and the Far East, and assist them identifying solution of social and economic problems, and the problems of cultural development and education. RAIPON works to guarantee the right on protection of native homelands and traditional way of life as well as the right to self-governance according to the national and international legal standards. RAIPON actively participates in the implementation of national and international projects aimed at saving the way of life and improving living environment of indigenous people. The GEF Project "Persistent Toxic Substances, Food Security and Indigenous Peoples of the Russian North" jointly executed with AMAP made it possible to take real steps to reduce PCB content in blood of the Chukchi Autonomous region indigenous people. The indigenous communities of Yakutia, Yamal-Nenets Autonomous region and Murmansk Region will be among the main users of the Project's results, that is why it is expect that RAIPON and its regional branches actively participate in preparing and implementing the project.

B.6. Outline the coordination with other related initiatives:

The IRBM for Siberian Arctic River Basins is part of the Programme on Russian Federation Partnership on Sustainable Environmental Management in the Arctic Under a Rapidly Changing Climate (Arctic Agenda 2020 or AA2020) being developed and expected to be implemented during GEF-5. The AA2020, established as the programme to implement the SAP-Arctic, which was already adopted by the Russia Maritime Board and endorsed by the

Arctic Council, aims to adopt and implement governance reforms for sustainable development of the Arctic in the Russian Federation.

The AA2020 Programme will also achieve multiple global environmental benefits through such reforms and a series of demonstration projects, such as addressing resource issues associated with transboundary large marine ecosystems (namely Barents Sea and West Baring Sea), energy efficiency improvement and renewable energy development, protected areas and introduction of integrated river basin management for water and biodiversity conservation. Under the AA2020, a series of initiatives are being proposed based on positive results of the UNEP/GEF Russian NPA-Arctic project and have been widely discussed in the Russian Federation and supported by federal and regional authorities, as well as by companies acting in the Arctic region. This project will be linked strongly to project on governance reform and the project on biodiversity conservation within AA2020.

The current project will benefit from information, knowledge and lessons learned from the following past and current GEF projects with a focus on the Siberian Arctic region:

- The UNDP/GEF Conservation and sustainable use of biological diversity in Russia's Taymir Peninsula: Maintaining connectivity across the landscape;

- The UNDP/GEF SFM Strengthening Protected Area System of the Komi Republic to Conserve Virgin Forest Biodiversity in the Pechora River Headwaters Region;

- The UNDP/GEF Improving the coverage and management efficiency of protected areas in the steppe biome of Russia;

The proposed project will make significant contribution to the Arctic Council's new broad initiative for 2012 – 2017 Actions for a Changing Arctic (ACA) and to the Arctic-HYDRA programme and its network for the observation of the Arctic Hydrological Cycle (Arctic HYCOS) and close linkages with these initiatives and programmes will be established.

The project will contribute to GEF IW portfolio learning and lessons exchanges with other GEF initiatives on IWRM, particularly in countries where climate change impacts are also significant.

The project outcomes will contribute to the development of new European Water Policy under the Water Framework Directive adopted in 2000 as the operational tool, setting the objectives for water protection for the future. The project will be also linked with the EC FP7 Collaborative project 2011 - 2013 entitled Evaluating Economic Policy Instruments for Sustainable Water Management in Europe (EPI-WATER). The project will be also related with the new European Space Agency (ESA) Climate Change Initiative (CCI) which includes the Northern Hydrology part which needs the hydrology data for validation of satellite products.

C. DESCRIBE THE GEF AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

Serving as the GEF Coordinating Agency for the parent GEF Russian Arctic Programme, in view of its long-standing involvement and support environmental issues in the Arctic Region and in the Russian Federation, through its broad environmental partnerships at global and regional levels, UNEP is best positioned to implement this project. The Arctic Programme and this project fit within UNEP's Programme of Work (www.unep.org) and within the major areas of expertise of UNEP and its partner specialized organizations involved in this project.

UNEP is the only GEF Implementing Agency whose core business focuses on the environment. Its role centered around catalyzing the development of scientific and technical analysis and in advancing environmental management in GEF-financed activities. UNEP provides guidance in relation the GEF-financed activities to global, regional and national environmental assessments, policy frameworks and plans, and to international environmental agreements.

UNEP hosts the coordination office of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA); the global intergovernmental programme that addresses the connectivity between freshwater and the coastal environment. The GPA provides leading advice to countries to help them address land based sources of marine pollution such as nutrients, including through National Programmes of Action (NPAs) that implement the GPA at the national level. Given the leadership of UNEP and GPA, this project will capitalize on the experience and existing networks of UNEP Divisions, Regional Seas Programmes and GPA around the world as well as the expertise from other UN Agencies and initiatives such as UNESCO, FAO, UNIDO, UNDP, UN Task Force on the International Year of Sanitation, GPA Review Meeting, UN-Water and UN-Oceans.

In a decision adopted by the Fifth Special Session of the UNEP GC/GMEF on sustainable development of the Arctic Region, UNEP is encouraged to co-operate with the Arctic Council, MEA, and other bodies as well as through cooperation with other institutions to seek means for sustaining and enhancing Arctic observing networks. UNEP mandate for the Arctic in general and Russian Arctic particularly spelled out in this Resolution also reflects upon UNEP's MTS for the period 2010-2013, programs of work for several thematic divisions and other UNEP strategic documents such as Climate Change Strategy, Ecosystem Management Programme and other UNEP's strategic documents.

Adopted in 2003 UNEP's Arctic Agenda – a program of action on sustainable development in the Arctic defined the following priorities in polar regions: (i) promote cooperation between UNEP and polar stakeholders to address environmental and sustainable development issues; (ii) implement integrated ecosystem management projects to protect biological and cultural diversity in the Arctic; (iii) undertake overview assessments on emerging polar issues; (iv) develop and implement capacity building projects in cooperation with Arctic indigenous peoples and organizations; and, (v) conduct outreach and education activities.

UNEP Division of Environmental Policy Implementation (DEPI) offers a strong relationship with its Regional Seas Programme and associated international environmental conventions. UNEP DEPI is implementing a Freshwater Programme (IWRM, International Waters and Rainwater Harvesting); and Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), including its commitment to address the linkages between the upstream (freshwater) and downstream (coasts and oceans) links.

UNEP has presence in the Russian Federation through it Moscow office with dedicated technical staff that assures appropriate supervision of project activities.

C.1 Indicate the co-financing amount the GEF agency is bringing to the project:

A range of Arctic-related activities are directly contributing to the objectives of this project and are implemented by UNEP with its core Environment Fund resources. Specific activities of the ongoing UNEP Programme of Work 2010-2011 and upcoming POW for 2012-2013, as approved in Feb 2011, under the Ecosystem Management, Climate Change, and Environmental Governance sub-programmes will contribute to this project as UNEP in-kind co-financing. The estimated co-financing of UNEP to the project is $200,000 over the project lifetime.

C.2 How does the project fit into the GEF agency's program (reflected in documents such as UNDAF, CAS, etc.) and staff

capacity in the country to follow up project implementation:

Specifically, the IRBM for Siberian Arctic River Basins project will be implemented based on the following priorities under the UNEP-MTS: Priority A, Climate Change; Priority C, Ecosystem Management; Priority D, Environmental Governance; and Priority E, Harmful substances and hazardous waste.

The project is also fully aligned with all four Objectives of the UNEP Marine and Coastal Strategy relating to: Healthy Oceans; Marine Ecosystems for Humanity; Reconciling Resource Use and Marine Conservation; and, Vulnerable People & Places. UNEP's new Operational Water Strategy includes the main element of climate change impacts on the water systems.

UNEP and its partner institutions (GRID Arendal and UNEP-WCMC) have a strong baseline of work in the Arctic region that is of relevance in establishing the foundation for continued work. UNEP considers that the Arctic region is a mirror of global changes, and has conducted or supported assessment and monitoring of the state of the Arctic environment. UNEP initiated a series of activities for the Arctic region, estimated at a total baseline of UNEP activities in the 2010-2011 biennium of USD 1,929 million (excluding GEF supported activities and associated financing).

UNEP also hosts the coordination office of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA); the global intergovernmental programme that addresses the connectivity between freshwater and the coastal environment. The GPA provides leading advice to countries to help them address land based sources of marine pollution such as nutrients, including through National Programmes of Action (NPAs) that implement the GPA at the national level. Given the leadership of UNEP and GPA, this project will capitalize on the experience and existing networks of UNEP Divisions, Regional Seas Programmes and GPA Action Plans around the world as well as the expertise from other UN Agencies and initiatives such as UNESCO, FAO, UNIDO, UNDP, UN Task Force on the International Year of Sanitation, GPA Review Meeting, UN-Water and UN-Oceans.

UNEP's Governing Council decided in February 2011 that greater support should be provided for the protection of the Arctic environment. In a decision adopted by the Fifth Special Session of the UNEP GC/GMEF on sustainable development of the Arctic Region, UNEP is encouraged to co-operate with the Arctic Council, MEA, and other bodies as well as through cooperation with other institutions to seek means for sustaining and enhancing Arctic observing networks. UNEP mandate for the Arctic in general and Russian Arctic particularly spelled out in this Resolution also reflects upon UNEP's MTS for the period 2010-2013, programs of work for several thematic divisions and other UNEP strategic documents such as Climate Change Strategy, Ecosystem Management Programme and other UNEP's strategic documents.

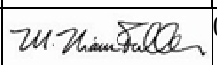
Adopted in 2003 UNEP's Arctic Agenda – a program of action on sustainable development in the Arctic defined the following priorities in polar regions: (i) promote cooperation between UNEP and polar stakeholders to address environmental and sustainable development issues; (ii) implement integrated ecosystem management projects to protect biological and cultural diversity in the Arctic; (iii) undertake overview assessments on emerging polar issues; (iv) develop and implement capacity building projects in cooperation with Arctic indigenous peoples and organizations; and (v) conduct outreach and education activities.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mr. Rinat Gizatulin	Deputy Minister of Natural Resources and Environment	MINISTRY OF NATURAL RESOURCES AND	09/02/2011

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/y	Project Contact	Telephone	Email Address
Maryam Niamir-Fuller, Director, GEF Coordination Office, UNEP, Nairobi		04/13/2012	Ampai Harakunarak, Task Manager, GEF/DEPI, UNEP/ROAP,	+662 288 1977	ampai.harakunarak@unep.org