

Outline of the GEF - Russian Federation Partnership on Sustainable Environmental Management in the Arctic Under a Rapidly Changing Climate (“Arctic Agenda 2020”)

I. Background

I.1 The Arctic Region

There is no single definition of the Arctic agreed upon among scientists, policy-makers, and inhabitants of the region. Depending on how it is delimited, the Arctic is home to between four and nine million people, including Indigenous Peoples for whom the Arctic has been a homeland for thousands of years (see figures 1 and 2 below). Arctic communities differ in their lifestyles and livelihoods across the circumpolar region¹.

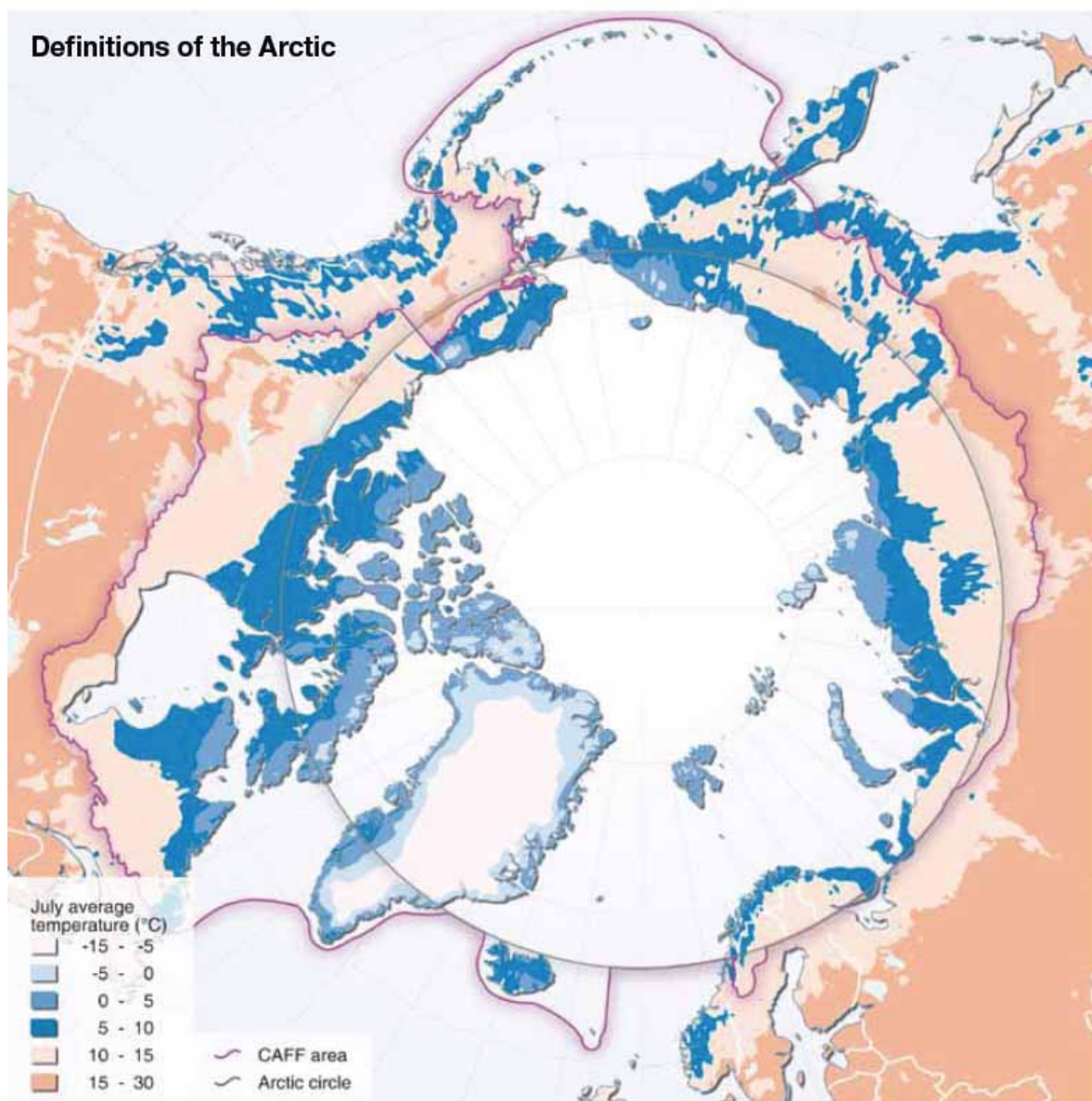


Figure 1. Definitions of the Arctic

¹ Johnsen, K. I., Alfthan, B., Hislop, L., Skaalvik, J. F. (Eds).2010. **Protecting Arctic Biodiversity**. United Nations Environment Programme, GRID-Arendal, www.grida.no

The Arctic is made up of 28 separate regions in 8 different countries: Canada, Denmark (Greenland and Faroe Islands), Finland, Iceland, Norway, Sweden, the Russian Federation and the United States of America (Alaska). Four regions generate more than 60 per cent of Arctic economic activities, that is, Khanty-Mansi, Alaska, Yamalo-Nenets and Sakha.

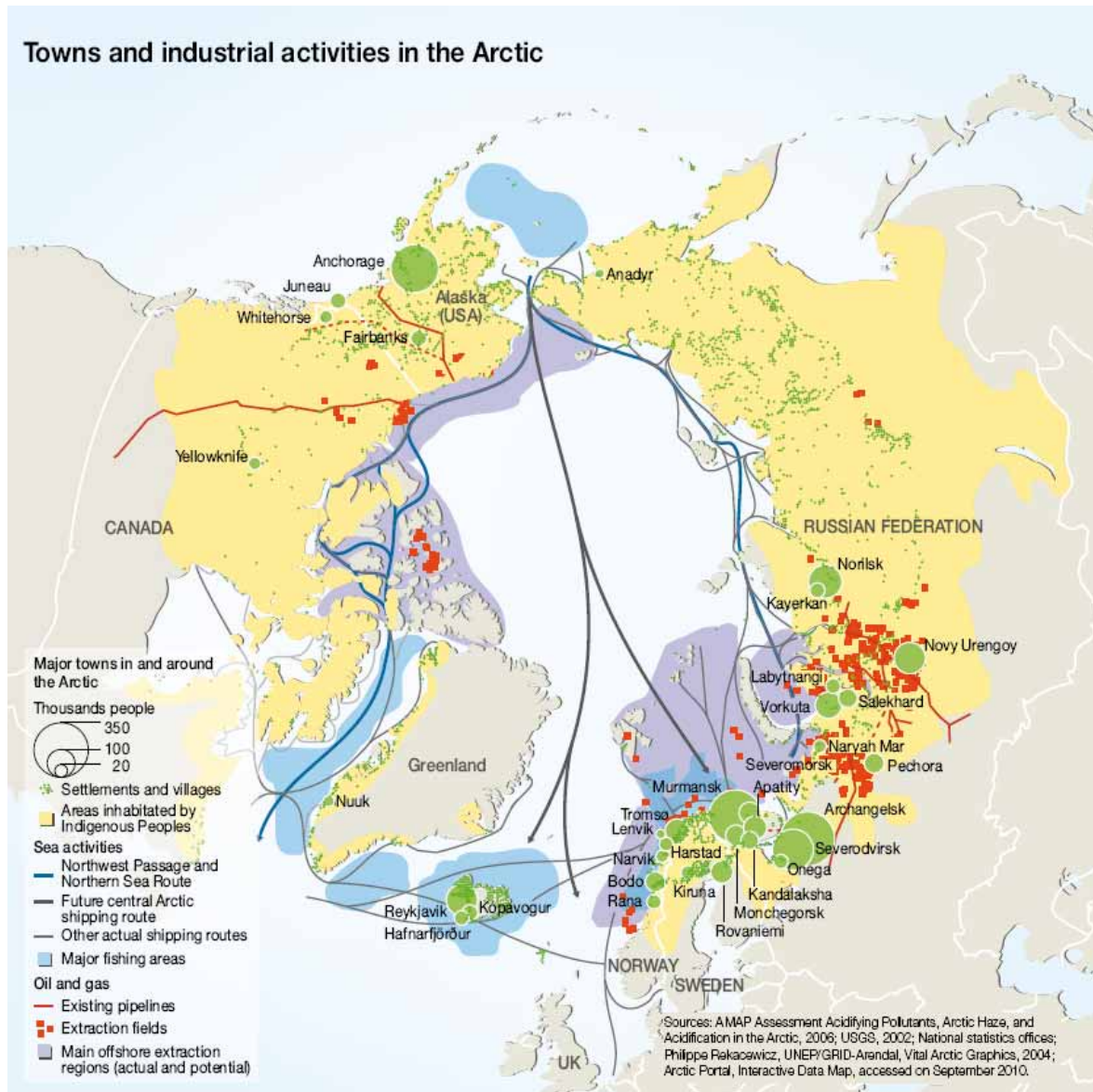


Figure 2. Economic activities in the Arctic (UNEP, 2010)

About 10% of the global oil production and 25% of the global gas production takes place in the Arctic. Approximately 3.2% of the world's gold production comes from the Arctic. Russian Arctic produces 21% of the global gem-quality diamonds, while almost 15% of the world production is now being extracted from northern Canada. With changing climate, the Northwest Passage and the Northern Sea Route may become increasingly important navigation routes. Currently, however, a sparse network of air, river and land routes surrounds the Arctic Ocean.

The Arctic Ocean and its seas are globally significant because of their **influence on oceanic and atmospheric circulation** and because of their **unique biological species**, which are an essential component of global biodiversity. Together with the Antarctic, the

Arctic contains the largest freshwater resource on Earth. The Arctic Ocean has the widest continental shelf of all the oceans.

Seven of the world's ten largest wilderness areas are located in the Arctic region. The Arctic contribution to global biodiversity is significant.

Although the Arctic has relatively few species compared to areas such as the tropics, the region is recognized for its genetic diversity, reflecting the many ways in which species have adapted to extreme environment.

The Arctic makes an important contribution to the Earth's climate stability, critical ecosystem services including maintaining the global carbon balance, and the preservation of the ethnic and cultural diversity of, and traditional nature use by, the northern peoples.

Seasonal assemblages of marine mammals, especially whales and other cetaceans occur over large areas. Critical sites along the flyways of globally important migratory bird populations are found in the Arctic, and are essential for the lifecycle of hundreds of bird species². Local contamination in so called "hot spots" in some cases may be of regional or circumpolar and even global nature in extent due to peculiarities of atmospheric and water flows, food web and other factors specific for the Arctic region.

1.2 The Russian Arctic

The **territory** of the Arctic Zone of the Russian Federation extends over more than 6 mln km² in total. It comprises the Arctic marine expanses within the territorial sea and exclusive economic zone of the Russian Federation – more than 3 mln km².

The **land area** of the Russian Arctic is about 18 percent of the entire territory of Russia or 44% of the circumpolar arc – approximately twice that of the next largest country, Canada. More than a million people live and work in the Arctic Zone of the Russian Federation (AZRF), including 136,000 members of 16 indigenous small nationalities of the North.

The **marine portion** of the Russian Arctic covers (in full or partly) seven (Barents, White, Kara, Laptev, East Siberian, Chukchi, and Bering) seas or seven Large Marine Ecosystems (LMEs) and the largest portion of the central basin of the Arctic Ocean.

In Russia, hydrocarbons and minerals are found in quantities that are of strategic importance on a planetary scale³ as well as fisheries resources⁴ and large areas for raising domestic reindeer⁵. The status of the environment in the Russian Arctic has a fundamental if not the most important impact on the environmental state of the whole circumpolar Arctic.

The Northern Russia is the major producer of oil and natural gas, supplying both the Russian Federation and the global market. Northern Russia alone represents two-thirds of

² There are between 500 mln and 1 bln birds breeding in the Arctic, for additional detail see also the Critical Site Network web-based tool in: www.wingsoverwetands.org.

³ Russian Arctic holds about 20% of the world's carbon based energy resources including about 30% of the world's undiscovered gas resources.

⁴ Arctic and sub-Arctic waters hold more than 400 known species of fish, including 115 freshwater species. Catch potential for marine fish and invertebrates is projected to increase by an average of 30 to 70% from 2005 to 2055 making Russian Arctic among the 20 most important fishing EEZ (Cheung et al., 2009).

⁵ Two major factors generally result in declining reindeer populations in the Russian Arctic: climate change and industrial expansion (Kokorin et al., WWF 2009).

all circumpolar economic activity. The regional differences in the distribution of economic activities among its Arctic regions make Russia the country with the most contrasting regional differences among all circumpolar countries. On average, the continuing intensification of natural resources-based economies puts ever increasing pressure on fragile Arctic ecosystems through the steady or increasing levels of air emissions, especially in urban areas, chemical contamination of water and soil, and degradation of ecosystems, decline in reindeer husbandry and deterioration in other environmental parameters leading to poor human health and declining life expectancy in the Russian Arctic⁶. The increased production and growth of the gross regional product in almost all the constituent subjects in the Arctic Zone, as observed since 2000 and projected into the future, will undoubtedly lead to an increased burden on the region's environment. As explained above, this burden might be the largest contributing factor to decline in environmental quality of the entire circumpolar marine and terrestrial ecosystems. This already requires urgent actions both to eliminate existing environmental damage and to avert rising environmental threats. Improving environmental quality in the Arctic Zone means the necessity of developing environmental regulations and stimulating energy-saving and environmental production and types of activity. Incentives should be given greater attention. Because of its exceptional geopolitical, resource, environmental, scientific, and cultural importance, the Arctic Zone should be made a strategic element in the regional development of the Russian Federation as well as priority area for environmental cooperation in the North.

The most profound change driver in the Arctic is **climate change**. Since the 1960's, the average temperatures over the Russian Arctic increased by 0.2-2.5°C, about twice the global average. Sea ice reduction was about 3% per decade since 1979. By 2050, ice extent in the Arctic may decrease by about 30% that is equivalent to 3.5 mln km² and the entire Russian coast will be ice-free in late summer, allowing navigation through the Barents, Kara, Laptev and East Siberian seas along the entire Northern Sea Route (NSR). The highest impacts to the terrestrial part of the Arctic will result from changes in permafrost structure and extent due to melting. The permafrost will become warmer and its active layer with seasonal freeze-thaw cycle will become thicker by 15-25% (in some coastal areas and in the Western Siberia – by 50%). Impacts of sea ice and permafrost melting in the Russian Arctic are multiple and have local/regional, global and transboundary impacts including (i) changes to Arctic marine transportation, (ii) higher coastal erosion due to more frequent storms and ice-induced erosion, (iii) effects on globally important biodiversity, migratory species and some key polar species, (iv) enhanced resource extraction potential including prospects of expanding offshore oil and gas exploration as well as higher accessibility of mineral resources, (v) higher risks of infrastructure and construction sector emergencies, (vi) release of significant amount of CO₂ and Methane greenhouse gases stored in peatlands and permafrost, and (vi) changes in traditional ways of life of indigenous people.

World Bank Report (2009)⁷ unequivocally argues that in the next decade countries like Russia will have a unique window of opportunity to make their development more resilient to climate change while providing numerous co-benefits. The focus of resilience measures should be on “no-regrets” measures improving **present** environmental management frameworks, institutions and practices. Failure to do so now will have

⁶ V. Votrin (2006). Measuring Sustainability in the Russian Arctic: An Interdisciplinary Study. PhD thesis. Free University of Brussels.

⁷ Adapting to climate change in Europe and Central Asia (2009). The World Bank, 117 pp.

unbearable impacts on country's competitiveness and well-being of its future generations. In the Russian Arctic and Subarctic, the backbone region of the Russian economy, the failure to institute environmentally sustainable frameworks will be felt particularly hard.

According to the Strategic Action Programme for the Protection of the Environment in the Arctic Zone of the Russian Federation (SAP-Arctic), the following priority environmental issues were identified in the Russian Arctic (listed in a priority order, points reflect final assigned values based on the Arctic Diagnostic Analysis – the higher the value – the more pressing challenge is):

- Environmental pollution (transboundary transport of pollutants by water and air, and oil, chemical, and radiation contamination) and deterioration of the quality of surface and ground waters in the coastal areas of the Russian Arctic (105 points);
- Changes in biodiversity and depletion of biological resources (103 points);
- Deterioration of the living conditions and environment of the indigenous population of the Russian Arctic and disruptions of their traditional use of natural resources (66 points);
- Negative consequences and threats to ecosystems and social-economic systems from the ongoing climate change (52 points);
- Land degradation and irresponsible use of land (34 points).

These five issues were identified based on a number of evidence-based criteria taking into account past, current and future threats ranked according to environmental, economic, social and transboundary impacts.

Changes in world **energy** markets and technology during the last couple decades have led to rapid expansion of extractive industries in the Russian Arctic, particularly oil and gas industries. According to the USGA Fact Sheet from July 2008,⁸ the US Geological Survey (USGS) estimated that more than one fifth of the world's undiscovered but technically recoverable reserves of hydrocarbons are located north of the Arctic Circle. The USGS data shows that the region accounts for about 13 percent of the world's undiscovered oil and 30 percent of the undiscovered natural gas; about 84 percent of the resources occur offshore are trapped below the icy waters. Based on a summary of results of the Circum-Arctic Resource Appraisal, most of the oil and oil-equivalent natural gas have been found in the Russian Arctic.

The Arctic is one of the Russian regions most vulnerable to **environmental pollution**. Many environmental pollutants that are released in lower latitudes tend to accumulate in the Arctic that represents a sink for global contaminants. The most important environmental problems in the Arctic Zone are associated primarily with the presence of "hot spots" in areas of intensive economic activity and often located either along the coasts or connected to the marine environment, above all by resource-extractive industries. Often these hot-spots are also areas of significant GHG emissions and climate mitigation opportunities. At present, more than 100 hot spots have been identified as part of the UNEP/GEF NAP-Arctic project throughout the Arctic Zone, among them 30 with the most severe environmental problems. The most dangerous types of pollution in the region are contamination by petroleum and petroleum products, chemical contamination by heavy metals, persistent organic pollutants (POPs), solid and hazardous

⁸ <http://geology.com/usgs/arctic-oil-and-gas-report.shtml>

waste, and radiation contamination. Significant local and regional sources of persistent organic pollutants (POPs) have serious implications for the health of indigenous communities depending on animal fat-rich natural food products. Sources of radioactive contamination are concentrated in the western Arctic and have local and transboundary sources. The Russian Arctic suffers tremendously from the past environmental pollution caused by industrialization of the Arctic in the middle of the last century. If left unabated, the situation will further deteriorate with warming climate and serious implications for environmental health of ecosystems in the circumpolar Arctic and beyond.

There is a vast potential for **energy efficient improvements and GHG reductions** in Russia and in the Russian Arctic specifically. Many of the identified pollution hot-spots are also significant contributors for GHG emissions. Often energy efficiency improvements in the industrial sector are also beneficial for other pollution sources and should be developed taking into account best available techniques/best environmental practices. Specific feature of the Russian Arctic is the presence of globally important sources of gas flaring. Reducing flaring and venting of the associated gas, possibly the largest in the world (by some estimates to be 15-25 bln cubic meters annually), represents particularly attractive GHG and black carbon mitigation opportunity specific for the Russian Arctic. In 2001 renewable energy sources accounted for only 3.5% of the national energy balance of which 2/3 was hydro- and 1/3 represented by other forms. A whole range of initiatives promoting renewable energy in Russia are ongoing, but neither of them focuses on the Arctic region that has enormous renewable energy potential, particularly for wind, small hydro-, and geothermal. Mitigation opportunities in the LULUCF sector are significant in the Arctic region too, but are supposed to be dealt with in other GEF projects under preparation. The proposed Arctic program will coordinate closely with them.

Biodiversity change, and reduced populations and habitat loss of rare Arctic species is a phenomenon of recent decades, when climate change and large-scale economic development have made the remote regions of the Arctic Zone more accessible and when pressures on biological resources have grown as the local population has become poorer and supplies to northern communities have been curtailed. Of special concern is the status of rare Arctic species, including red-listed species such as polar bear, Atlantic walrus, whales and other cetaceans, snow sheep, certain species and subspecies of whitefish and salmon, and of migratory species of waterfowl and shorebirds such as geese, brant, and waders. Inadequate geographic coverage and ineffective biodiversity protection is characteristic of the specially protected natural territories of the Arctic Zone.

The role of marine and coastal protected areas (MCPA) becomes increasingly important in the changing Arctic as they potentially facilitate the adaptation of natural ecosystems to climate changes by mitigating direct anthropogenic threats, balance various kinds of space and resources use and alert society to changes taking place in the marine and coastal ecosystems. Eight strictly protected nature reserves or zapovedniks, one national park and three federal natural reserves, or zakazniks, and one nature monument encompass marine compartments or have marine buffer zones. They cover a number of essential biodiversity features; some marine areas within MCPAs may be considered as integral marine ecosystems and/or include sites of primary importance for ecosystem monitoring due to the existence of long-term observations datasets. Total marine surface area under protection totals to nearly 96 thousand km² or about 2% of the areas of the Arctic seas under Russia's jurisdiction (the Bering Sea excluded). Management of the Arctic MCPAs is a very complex task and there is no surprise that management effectiveness of the federal Arctic MCPAs in Russia is scored to be relatively low. Potential

threats and future challenges to protection of Arctic marine biodiversity and MCPAs call for essential strengthening of the MCPAs network. As it is difficult to expect that the number of MPAs in the Russian can be significantly increased in the next decade the efforts of conservation organizations should be balanced between advocating for creation of new reserves and strengthening capacity of the existing MCPAs. Remoteness and limited access to most of the Arctic MCPAs call for development of remote sensing and other distant methods for monitoring and surveillance. The challenges for the MCPA network in the Arctic are difficult to be met using the zapovedniks and national parks capacity and the governmental support so establishing of horizontal cooperation and partnership with science, NGOs, business and local communities is the only way for protected natural areas to perform their important mission in the changing Arctic.

Less than 50 percent of landscape diversity can be found in protected territories, and only 60-65 percent of terrestrial biodiversity (20-30 percent for plants, especially rare species, and 70-75 percent for fauna) are represented. Particular challenges remain with regards to the development of protected areas under changing climate. Biological pollution, invasive species, and the introduction of exotic species are and will be a high priority because of expanded economic activity and climate warming in the Arctic. Some of the identified pollution hot-spots are also located close to ecologically important and sensitive areas.

Commercial fishing in the Russian Arctic is concentrated in the Barents and Bering Seas. Marine and coastal fisheries are the traditional source of income for indigenous communities, as well as an increasing source of revenues for local population. In the second half of the 20th century a dramatic decline in the abundance of the most important commercial fish stocks, cod and capelin, was observed. The Barents Sea cod fishery and the Russian Far Eastern Alaska pollock fishery alone account for between 20 and 25% of the global catch of whitefish. In recent years, significant progress has been achieved in reducing Illegal, Unreported and Unregulated (IUU) fishing in the Barents Sea. However, unsustainable fishing practices remain a major concern in the western Bering Sea and the Sea of Okhotsk in the Russian Far East. Climate change impacts, including an increased flow of contaminants and potential development of offshore oil and gas production, have increasingly become a serious challenge to fisheries in the Russian Arctic. However, for Arctic waters as a whole, addressing fisheries problems is considered to be a medium- to long-term priority and will increase in importance with the ice-free Arctic Ocean.

Disruption of traditional nature use of the indigenous peoples, as an environmental problem, stems not only from the taking of their lands for industrial uses but also from the subversion of the resource potential of the traditional economy of the indigenous peoples. Many northern rivers have lost their significance as fisheries because of pollution, the destruction of spawning areas, and poaching. The hunting grounds of the native peoples have been made accessible to newcomers by the development of transportation facilities and are taken for mining and industrial development. There are no effective government mechanisms to support the small businesses of the indigenous small nationalities. The legislative basis that governs the territories of traditional nature with limited economic activity is not sufficiently developed. The UNEP/GEF/AMAP Project also clearly identified the significant impacts of pollution on the lifestyle on of the indigenous peoples, due to the high level of contaminants in their traditional diet.

Most of the above environmental challenges have transboundary and globally significant causes and effects that justify interventions supported by the GEF. The Russian Arctic

including its marine and terrestrial parts is among the world's last wilderness areas, but is undergoing rapid transformation due to climatic change and accelerating development, stressing ecosystems and affecting well-being of its residents. The Arctic is of vital importance to the planetary health and environmental changes in this region are of global significance.

The Arctic is one of the most important strategic regions in the Russian Federation in terms of security, sustainable development and natural resources. Therefore, in recent years a number of high-level strategies have been adopted by the Russian Federation, taking into account issues related to the Arctic region. These include the Marine Doctrine of the Russian Federation; Environmental Doctrine of the Russian Federation; Concept of the National Security of the Russian Federation; Concept of Transition of the Russian Federation to Sustainable Development; Guidelines of the Long-term Socioeconomic Development of the Russian Federation, and approved in 2008 Framework State Policy of the Russian Federation in the Arctic up to 2020 and beyond. These documents acknowledge the importance of environmental protection and role in international cooperation in improving environmental status of the Russian Arctic. International cooperation and governance under the Arctic Council is very important and critical due to the unique character of the Arctic Ocean and its LMEs surrounded by the seven countries. No effort in improving Arctic environmental governance will succeed without regional cooperation. Outputs and experiences gained from the Arctic Programme will have longer-term positive consequences for environmental protection in all the riparian countries, and will contribute to the strengthening of cooperation in the Arctic region and beyond. In a sense, any development in the Russian Arctic is reviewed by national authorities not only in terms of national benefits, but always as a step towards peaceful and sustainable development of the circumpolar Arctic as such⁹.

Since its establishment, the GEF has supported several projects in the Arctic region, including promotion of integrated ecosystem approach and role of indigenous communities in environmental co-management (GEF ID 1163), assessment of pollution by persistent toxic substances and their impacts on indigenous communities (GEF ID 807), development of the strategy for the protection of the Arctic environment (GEF ID 1164), biodiversity conservation (GEF ID 1727, 3518, 2035, 3909). A number of projects supported energy efficiency and renewable energy developments in Russia, not focusing on the Arctic region particularly (GEF ID 4427, 2194, 2111, 2376, 3597, program GEF ID 3653). The proposed program builds on these past initiatives and will seek complementarities/working relations with other projects as far as they concern sustainable developments in the Russian Arctic.

The closest “pre-cursor” of the proposed Arctic program - the **The Strategic Action Programme for Protection of Environment in the Arctic Zone of the Russian Federation (SAP-Arctic)**, covering the period up to 2020 and beyond, has been developed in the framework of the GEF supported NPA-Arctic project and was endorsed by the Maritime

⁹ Speaking at the International Conference “The Arctic – Territory of Dialogue” held in Moscow in September 2010, Russian Prime Minister Vladimir Putin laid down key priorities for development in the Russian Arctic highlighting the importance of cooperation and environmentally-friendly developments in the region. “First of all, we are talking about creating good quality comfortable living conditions. Secondly, new economic growth zones must be supported and major domestic and foreign investments attracted. Thirdly, “serious sums” must be invested in science and environmentally-friendly infrastructure.” Prime Minister underlined that he was confident that the Arctic region is bound to serve as a region of united efforts and true partnership in economy, security, science, education and in the protection of the region’s cultural heritage.

Board at the Government of the Russian Federation in June 2009. This is the first ever strategic document setting priorities, key measures and indicators for the environmental protection in the Arctic Zone of the Russian Federation developed taking into account national interests as well as international obligations and regional, global and transboundary consequences of activities implemented at the Russian territory. Among major successes of NPA-Arctic project the proposed program relies on are the following: completed assessment of environmental problems in the region with a focus on hot-spots and transboundary impacts; established and functioning inter-ministerial forum with a participation of regional administrations; private sector companies, indigenous communities and academia; increased level of trust and ownership between federal, regional and municipal entities in the Russian Arctic; established through the Steering Committee group of key stakeholders in polar countries (USA, Iceland, Sweden, Finland, Norway) and integration of support by NPA-Arctic projects into the work programs of several working groups of the Arctic Council¹⁰ (PAME, ACAP, CAFF, AMAP and SDWG).

II. Arctic Agenda 2020

Climate resilient sustainable development of the Arctic region represents a particular challenge and opportunity not only for Russia, but on a global scale because the lessons learned could be used in other world regions facing rapid environmental changes (SIDS, mountainous areas, low lying coastal zones, land-locked countries, countries with economies relied on the extraction of fossil fuels and etc.). There are certain factors prevailing in the Russian Arctic that distinguish this area from other country regions and suggest a cross-sectoral and systemic approach as THE ONLY effective management strategy. Such an approach can generate multiple global and local environmental and economic benefits. While investments aimed at improved environmental pillar of sustainability at the national level might be beneficial for this region too, without targeted approach that takes into account region's specifics, these investments proved to be less effective¹¹. These baseline factors taken into account in the Arctic program include:

- low temperatures throughout the year, a long polar night and polar day, frequent magnetic storms, fogs, the monotonous topography of polar desert and Arctic tundra, perennially frozen ground, an ice regime that lasts more than six months of the year, terrestrial glaciation on several islands, and other extreme natural features;
- unstable and fragile ecosystems, which are easily impaired by human-caused impacts and take many years to recover;
- pollution of the Arctic Ocean, principally by transboundary atmospheric transport as well as by large rivers (Northern Dvina, Pechora, Ob, Yenisei, Lena, Indigirka, Yana, and Kolyma rivers), which drain the greater part of Eurasia, including areas with developed industrial and agricultural infrastructure;
- global climate change, which since the turn of the last century is manifesting itself with a great force and on a continental scale;
- low population density and on average, widely dispersed human settlements;

¹⁰ http://arctic-council.org/section/working_groups

¹¹ T. Koivurova (2005). Environmental Protection in the Arctic and Antarctic: Can the Polar Regimes Learn From Each Other? *International Journal of Legal Information the Official Journal of the International Association of Law Libraries*, V.33(2): article 5.

- uneven economic development, in which much of the mainland Arctic Zone is characterized by traditional settlements of the indigenous small nationalities together with scattered centers of intensive industrial development;
- living and economic conditions that are dependent on supplies of fuel, produce, and other goods imported along complex transportation networks using airways, water transport (including the Northern Sea Route) and rivers;
- a monotypical, resource-based economy in the Arctic subjects of the Russian Federation, with high costs for supporting economic activity and maintaining the well-being of the people; and
- inadequate environmental investments by the government and relatively low environmental investments (low compared to the level of environmental damage) by private companies.

Based on the Diagnostic Analysis of State of the Environment in the Arctic zone of the Russian Federation under the UNEP/GEF Russian NPA Arctic Project, the root causes of developmental and environmental problems in the Russian Arctic and their transboundary implications require application of a systemic approach targeting multiple sectors at different geographic scales. The Strategic Action Programme (SAP-Arctic) was developed, outlining the action needed to address wide ranging environmental issues and concerns, covering land-based and sea-based sources of pollution, climate change and biodiversity. Although SAP-Arctic was developed through an International Waters project, it includes necessary actions in the areas of biodiversity, climate change mitigation and adaptation, international waters and chemicals management. In a smooth transition to SAP implementation, the Russian Federation is required to carry out a needed transformation of the environmental governance in the Arctic Zone of the Russian Federation, as well as attract investments in environmental technologies and innovations. The Russian Federation welcomes an initiative to establish a GEF Partnership on sustainable environmental management in the Arctic (the “Arctic Agenda 2020” or the “Arctic Programme”) to achieve such a goal for facilitating the SAP-Arctic implementation. A comprehensive environmental governance reform will lead to generation of global benefits associated with biodiversity, climate change and international waters. This reform should include creation of a mechanism for acquiring and utilizing international and national knowledge, information, experience, best organizational and technological solutions and practices, as well as leveraging funds from various other sources to complement the existing national public and private partnerships.

The program is envisaged as a set of targeted projects aimed to deliver local, regional, and global environmental benefits in an integrated way and implemented through UN agencies and multilateral banks. The program was designed around key sectors with a significant potential for transformation, while keeping integrity of the whole package through inter-linked interventions, avoiding duplication and promoting complementarity with other initiatives at the national level and with the ongoing work of the Arctic Council working groups. International cooperation and governance under the Arctic Council is very important and critical because of the unique character of the Arctic Ocean and its LMEs surrounded by the seven countries. No effort in improving Arctic environmental governance will succeed without regional co-operation. Russia is the only GEF recipient country and GEF funding will be instrumental in securing an adequate level of regional cooperation, technology and knowledge transfer as well as regional policy development.

The proposed programme is based on partnerships with international (Arctic Council and its working groups, NEFCO), federal (several line ministries), regional (several republics, oblasts and okrug administrations), and municipal (Murmansk, Arkhangelsk, Naryan-Mar, Yakutsk, Anadyr) authorities established during implementation of the NPA-Arctic project. The innovative feature of the programme is its reliance on the public-private partnerships with the largest Russian industrial and energy companies such as Gazprom, Rosneft, Lukoil, Norilsk Nickel as well as Russian financial institutions (Vnesheconombank, Sberbank, others) in protecting the Arctic environment. The proposed strategic approach envisages mobilization of financial resources and expertise of the World Bank, EBRD, NIB and NEFCO as main international financial partners.

The proposed program addresses the following key barriers:

Governance barriers:

1. Low efficiency and often absence of national/regional policies and strategic national/regional development planning in the Russian Arctic;
2. Lack of strategic policies for sustainable development of indigenous communities of the Russian North;
3. Deficiencies of the Russian environmental management system and lack of compliance of economic activities with existing environmental legislation and rules;
4. Under-developed environmental legislation for the Arctic and lack of specific guidelines and requirements for undertaking industrial and other sectoral activities in the Russian Arctic including arctic shelf (including legislation dealing with past environmental damages);
5. Lack of effective inter-disciplinary institutional coordination mechanisms at the national and regional levels.

Financial barriers:

6. Lack of investment and use of market-based mechanisms in environmental protection of the Arctic;
7. Non supportive environment and lack of capacity for the adoption and use of environmentally-friendly technologies and innovation.

Knowledge and capacity barriers:

8. Absence of integrated circumpolar monitoring system of land, atmosphere, fresh and marine waters including physical parameters, pollutants, biodiversity and environmental health;
9. Lack of research and assessments of the status of the Arctic environment and its components including climate change impacts.

The overall objective of the programme is defined to be to adopt and implement governance reforms for sustainable development of the Arctic in the Russian Federation. The programme will take an approach to 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 Bering Sea), energy efficiency improvement and renewable energy development, protected areas and introduction of integrated river basin management for water and biodiversity conservation. These demonstration projects are well coordinated under and closely linked with the governance reforms.

The Programme has five components and is expected to produce outcomes from each of the component (Table 1). The component 3 in Table 1 is not provided with the GEF budget so far. Upon ratification of the Stockholm Convention, the Russian Federation becomes eligible for GEF POPs and chemicals funding. As soon as the Russian Federation's eligibility for GEF POPs and Chemicals funding is established, relevant Russian institutions and international organizations will prepare GEF projects to be included in Component 3 of the Programme. Until such time, contaminant related activities will be implemented relying on co-financing.

Table 1: COMPONENTS, OUTCOMES AND OUTPUTS OF AA2020

Program Components	Grant type	Expected Outcomes	Expected Outputs	Type of Trust Fund	Indicative GEF Financing	Indicative cofinancing
					(\$)	(\$)
1. Strengthened Governance and financial mechanisms for the Russian Arctic Environment	Investment, Technical assistance	Strengthened institutional, legal, financial and policy mechanisms for the Arctic Environment in order to achieve SAP-Arctic targets	Policy, strategic and regulatory reforms to support implementation of SAP-Arctic, generating multiple global environmental benefits in support of the protection and development of transboundary water systems, biodiversity conservation and climate change mitigation; Fully developed partnership for the implementation of SAP, including that with indigenous communities; Developed Environment Fund for the implementation of the actions identified in SAP; and Demonstration projects on emerging issues, including black carbon and transboundary large marine ecosystems (Bering and Barents Seas).	GEF	10,500,000	115,500,000

2. Conservation and Sustainable use of biodiversity, natural resources, and ecosystem services	Technical assistance	Enhanced conservation and sustainable use of biodiversity and natural resources to maintain the flow of ecosystem services in productive and non-productive landscapes of the Russian Arctic; and Maintained ecosystem services to store carbon.	Expansion and Strengthening of the Protected Areas network in the Russian Arctic with the full involvement and support of local community groups; Protection of critical ecosystems for BD conservation and with high carbon storage functions; and Enhanced water resources/river basin management capacity for biodiversity, climate change and international waters benefits	GEF	8,500,000	18,500,000
3. Reduced contaminants entering the Arctic environment	Investment, Technical assistance	Application of new approaches and technologies in reducing contaminant releases into the Arctic environment	A series of demonstration projects that address the identified pollution hot spots in the Russian Arctic.	NA	0	60,000,000
4. Reduced and avoided emission of Green House Gasses in the Russian Arctic	Investment, Technical assistance	Reduced and avoided emission of green house gasses from the Russian Arctic	A number of demonstration projects implemented in improving energy efficiency in industrial and building sectors; A number of demonstration projects for the development of alternative renewable energy	GEF	7,000,000	105,000,000
5. Monitoring and Evaluation, Program coordination and management	Technical assistance	Lessons learnt and experiences from the programme being used elsewhere in Russia and globally to address problems of polar/high altitude ecosystems; and eEffective project coordination and management	Operational mechanism for sharing the lessons learnt and experience from the Programme, which is linked with GEF knowledge sharing mechanisms; Information on the status of the Russian Arctic environment made available to the public; The programme implementation reported to the GPA, Arctic Council and other political fora; and Reports and reviews of project documents.	GEF	1,500,000	5,000,000
Total program costs					27,500,000	304,000,000

Institutional coordination mechanism for the Arctic Agenda 2020

The UNEP/GEF project, “Russian Federation: Support to the National Plan of Action for the Protection of the Arctic Marine Environment (NPA-Arctic)”, established an institutional coordination mechanism comprising of Project Steering Committee, Supervisory Council and Inter-Agency Working Group for the purpose of overseeing the project implementation as well as enhancing Russian inter-ministry coordination. The Inter-Agency Working Group (IAWG), composed of Russian federal and regional ministries, administrations and institutions, was considered to be a successful mechanism to agree on a strategic action programme. IAWG was comprised of key relevant ministries and regions belonging to the Russian Arctic, and functioned as inter-ministry coordination for the implementation of the NPA-Arctic project.

For the Arctic Agenda 2020 Programme, UNEP is expected to be designated as the GEF Programme Coordination Agency for the purpose of coordinating GEF agencies with the national counterparts. UNEP will carry out the tasks of the GEF Programme Coordination Agency as defined in GEF/C.38/5/Rev.1. Within Russia, the Ministry of Economic Development (MED) is designated as the institution for coordination of Russian institutions participating in the programme and delivery of expected outputs. The MED will be tasked to convene and chair the Inter-Agency Working Group (see below) to be supported by the Programme Coordination Agency for the successful delivery of all programme components and achievement of the programme goal.

For the AA2020, the Improvement of environmental governance and coordination of SAP-Arctic Implementation project (project no. 1) will include a component that serves as the overall Programme Coordination. The AA2020 is established as the programme to implement the SAP-Arctic, which was already adopted by the Russia Maritime Board and endorsed by the Arctic Council. For monitoring the implementation of the AA2020, the following mechanism will be established, building upon the existing successful institutional and management framework of the NPA-Arctic Project:

- The Inter-Agency Working Group of the NPA-Arctic project will be reformed into the Inter-Agency Working Group (IAWG) for the Russian inter-ministry and inter-sectoral coordination of the implementation of the AA2020 and all the component projects under the AA2020 umbrella, and for monitoring the implementation of the SAP-Arctic. The membership of the Working Group will be reviewed and may be expanded to include Russian institutions that may play a key role in the implementation of the SAP-Arctic and AA2020
- A Programme Implementation Monitoring Group (PIMG) will be established, comprising of the GEF Agencies and main international and Russian executing agencies for the component projects under the programme. PIMG will be co-convened and co-chaired by the GEF Programme Coordination Agency and MED, meet in conjunction with the project steering mechanism for the Improvement of environmental governance and coordination of SAP-Arctic Implementation project and in line with the GEF Annual Monitoring System. It is a mechanism to solicit and consolidate the information on the progress in the component project implementation and prepare Annual Programme Performance Reports to be submitted to GEF.

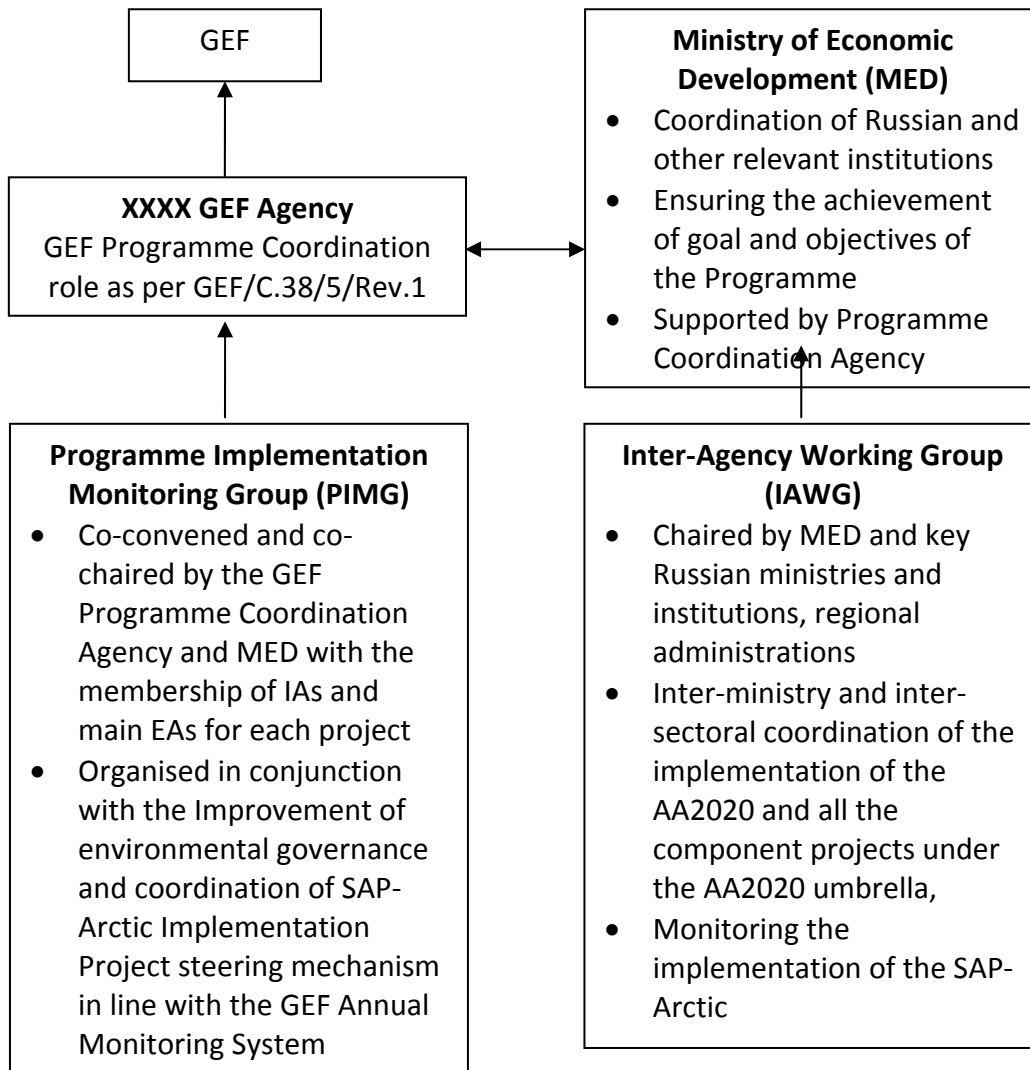


Figure 1: proposed institutional coordination mechanism for AA2020

Every single project proposed under the umbrella program will address certain elements of governance, financial and capacity building barriers, as outlined above, when applied to a particular issue/sector. As it stands now, Arctic Agenda 2020 consists of a set of interlinked projects (Table 2). The main goal of the “backbone” or coordinating project “Improvement of environmental governance and coordination of SAP-Arctic Implementation” is to assist Russian Federation in developing a legal, administrative and institutional framework of environmental governance when applied for the Arctic and in-line with the current best practices of the other circumpolar countries for the objective of effective implementation of the SAP-Arctic. This project aims to provide resources for the overall coordination in the program as well as with other concurrent GEF and non-GEF initiatives. Since governance component is cross-focal, institutional building measures in other projects will depend on successful coordination with this backbone project. Among expected outcomes of the project is the adoption of legal, administrative and institutional frameworks at the federal and regional levels; and improved sustainability of the governance regime in the Russian Arctic.

The second project is aimed to establish the Arctic Environment Fund (AEF) as the main instrument for financing SAP-Arctic implementation. AEF's main goal will be providing sustainable financing to priority environmental and climate change projects from various internal and external sources and to increase the effectiveness of international cooperation through the combined use of specific international environmental finance instruments (soft loans from International Financial Institutions, GEF grants, tradable certificates for greenhouse gas emissions) with traditional domestic financing from the budgets of different levels, as well as funds attracted by Russian companies and banks. AEF will support Russia's efforts to address past environmental damages by putting in place a PEL program in Arctic. These activities will be implemented in close cooperation with the "Russia Addressing Past Environmental Liabilities Project" that is under preparation by the World Bank and the Government of the Russian Federation.

Biodiversity project under the umbrella program will satisfy two major objectives of the GEF biodiversity strategy enhancing the effectiveness of the existing protected areas network and mainstreaming biodiversity conservation into decision-making process with a particular emphasis on traditional knowledge of northern indigenous communities. In this regard in preparing the project, special consideration will be given to the increased focus of the GEF on capacity building on access to genetic resources and benefit sharing. Project outcomes will include expansion of protected area network in the Russian Arctic; approved financial sustainability plans for protected areas and beyond them; contributions to the development of national ABS framework with targeted activities in the Arctic.

The project on integrated water resources management in basins of large Arctic rivers under climate change will build national and regional capacity mitigating negative impacts of climate change on Arctic economies, societies and the global environment. Arctic rivers are expected to be significantly modified with climate change. The effects will include extreme flooding, coastal erosion, changes to river and catchment ecosystems and increased flux of freshwater and contaminants into the Arctic Ocean. Further melting and degradation of the catchment permafrost lead to modified hydrological cycle and increased release of stored carbon under the permafrosts. While predicting climate change impacts is highly complex, experts agree that in combination these factors will cause dramatic changes to Arctic Ocean circulation and regional climate, flux of pollutants, increased emission of green house gasses, and impacts on Arctic river and catchment ecology and hydrology affecting the quality of freshwater productivity of rivers and streams, biodiversity and habitat, growth, and survival of freshwater aquatic species that are currently used for food by Arctic residents. The project implementation will include co-operation with other Arctic States on Integrated River Basin Management approaches (Yukon and Mackenzie) as well as potential links will be found on knowledge exchanges with other GEF IWRM projects (eg., Amazon Basin). The choice of water sector in the umbrella program is explained by the fact that Siberian Rivers serve as key transport arteries in the current and future Arctic development including coastal zone and their sustainable management is of utmost importance in the framework of environmental governance of the Russian Arctic.

Finally, the project on the West Bering LME will work towards integrated, adaptive ecosystem management framework aiming to reduce the unsustainable harvesting of fisheries, reduce risks to future degradation of marine and coastal environment, and support several targeted demonstration projects including e.g., a pilot marine electronic highway programme for Bering Sea and Bering Strait.

One of the proposed projects aims at supporting targeted investments in climate mitigation in the Russian Arctic through establishing a special investment vehicle for support to small and medium size EE municipal infrastructure projects and market development for off-grid renewable energy and local energy resources. Expected outcomes/outputs will include measurable, reportable and verifiable (MRV) GHG reductions; demonstrations of innovative environmentally sound technologies; improved energy efficiency policies and regulations; installed renewable energy capacity.

The total amount of funding for the proposed Arctic Agenda 2020 is estimated at 331,5 million USD, including 100 million USD of IBRD loan, 70 million USD of IBRD lending resources, and about 27.5 million USD grants from the GEF (see table 2). The Russian contribution to the partnership initiative of approximately 130 million USD will be provided from the state budget, regional and municipal budgets, and financial resources allocated by the participating private sector companies, organizations and national financial institutions. Co-financing contributions will reflect the incremental reasoning of GEF funding for global environmental benefits associated with international waters, biodiversity conservation and climate change mitigation. The catalytic role of the GEF will also be critical in assisting Arctic countries in leveraging co-financing in association with national funding, development financing, agency funding and private sector actions for different elements of a comprehensive approach to sustainable management of the Arctic ecosystem.

Outputs and experiences of the programme will have longer-term consequences for environmental protection in the country beyond the Arctic region. Without GEF's support and its facilitating role, present opportunities and experiences gained in implementation of past projects can be lost or remain fragmented. Significant efforts supported by the GEF in other parts of the country will not be fully utilized for the Arctic region and transboundary co-operation between circumpolar countries will remain focused on specific regions and severely under-funded. The key to sustainable development in the region through support of public-private partnerships and strong engagement of business community into environmental protection will not be utilized.

Project Proposals for the next steps of environmental cooperation in the Russian Arctic are preliminarily described in Annex 1. These include:

- Improvement of environmental governance and coordination of SAP-Arctic Implementation;
- Establishment of financial mechanisms and private public partnership for the SAP implementation;
- Conserving Biodiversity in a Changing Arctic;
- Integrated River Basin Management for major Arctic rivers to achieve comprehensive benefits ;
- Integrated adaptive management of the West Bering Sea Large Marine Ecosystem in a Changing Climate; and
- Targeted support for energy-efficiency and renewable energy in the Russian Arctic.

These proposals are based on the positive results of 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. Reports on these proposals were presented and discussed with positive response at the Arctic Council's ACAP, PAME and SAO meetings in the end of 2010. Moreover, SAOs welcomed

establishment of SAP-Arctic and proposals for its implementation, and called on interested parties, including Arctic States, to participate in preparing and implementing the Program.

Further work during the formulation of the GEF Programmatic Framework Document will focus on enhancing consistency and synergies between the above proposals, in consultation with all stakeholders.

Table 2: PRELIMINARY LIST OF PROJECTS THAT WOULD FIT UNDER THE ARCTIC PROGRAM FRAMEWORK AND PRELIMINARY COST ESTIMATION

<u>Project Title</u>	<u>GEF Amount</u>			<u>GEF Total</u> ¹²	<u>Co-financing (\$million)</u>	<u>Total (\$million)</u>
	<u>(\$ million)</u>					
	<u>Focal Area</u>	<u>Focal Area</u>	<u>Focal Area</u>			
	<u>IW</u>	<u>CC</u>	<u>BD</u>			
1. Improvement of environmental governance and coordination of SAP-Arctic Implementation	1,0	1,0	0,5	2,5	10,0	12,5
2. Establishment of financial mechanisms and private public partnership for the SAP implementation	2,0	4,0		6,0	160,0	166,0
3. <u>Conserving Biodiversity in a Changing Arctic</u>		1,0	5,5	6,5	12,5	19,0
4. Integrated River Basin Management for major Arctic rivers to achieve comprehensive benefits	1,0		1,0	2,0	6,0	8,0
5. Integrated adaptive management of the West Bering Sea Large Marine Ecosystem in a Changing Climate	3,5			3,5	10,50	14,00
6. Targeted support for energy-efficiency and renewable energy in the Russian Arctic		7,0		7,0	105,0	112,00
Total	7,5	13	7,0	27,5	304,0	331,5

¹² without counting fees for Implementing Agencies

Annex 1. Preliminary Set of Project Concepts as a Basis For Further Discussion And Development with Partners

(for revision, integration and discussion with partners during the formulation of the GEF Programmatic Framework Document)

Project 1. Improvement of environmental governance and coordination of SAP-Arctic Implementation

Justification of the problem:

The Strategic Action Program for Protection of Environment in the Arctic Zone of the Russian Federation (SAP-Arctic) sets the goals, tasks, principal activities and targets in the area of protecting Arctic environment for the period up to 2020. The SAP-Arctic takes into consideration the growing importance of the Russian Arctic environment in national, regional and global contexts; as well as economic development impacts on, and consequences of changes in, the Arctic climate and ecosystems.

The SAP-Arctic describes five (5) priority issues relating to sustainable environmental and natural resource conservation, use and management that are of national and global concern. This includes deterioration of the Russian Arctic environment by natural and anthropogenic sources of pollution, land degradation and problems of land use, rapid changes in biodiversity and depletion of biodiversity resources, adverse effects of environmental deterioration on indigenous populations of the Russian Arctic, and negative impacts of climate change on the Arctic environment.

To effectively cope with the priority environmental problems in the Russian Arctic, the SAP-Arctic sets specific objectives for national implementation and Arctic regional cooperation. These objectives include the prevention and abatement of the environmental pollution caused by transboundary pollutant transfer, oil, chemical, and radioactivity contamination; mitigation and avoidance of green house gases, preservation and improvement of the quality of environment and conditions for traditional nature use by indigenous people of the North; and the prevention and reduction of negative consequences of natural and human-caused disasters, including those associated with global climate change.

Project objectives:

The proposed project aims to assist to the Russian Federation in promoting sustainable and integrated environmental management as well as mainstreaming climate change challenges into the federal and regional programmes of the Russian Arctic. The specific objectives of the proposed project are three-fold: strengthening and improving national governance systems to provide a means for joint management of transboundary problems in the Arctic LME; improvement of biodiversity conservation legislation both at the federal and regional level; and addressing climate change mitigation in the Russian Arctic through developing capacity to harness climate benefits of black carbon and other Short-Lived Climate Forcers (SLCF) mitigation strategies.

Project consistency with the GEF focal area strategies:

This project will contribute to the implementation of the Focal Area Strategies and Strategic Objectives for GEF-5, particularly International Waters (IW) Strategic Objective

IW- 2: “Implementation of agreed Strategic Action Programmes (SAPs) incorporates ecosystem-based approaches to management of LMEs, ICM principles, and policy/legal/institutional reforms into national/local plans”. The project is also consistent with the Climate Change focal area Strategic Objectives CCM -1: Promote the demonstration, deployment, and transfer of innovative low-carbon technologies.

The proposed project will promote synergetic effects between GEF international water, biodiversity conservation and climate change mitigation strategies through innovative measures toward low-carbon environmentally-sound development path as well as conservation and rehabilitation of ecosystem services in coastal and marine environment of the Russian Arctic. The SAP covers the seven large marine ecosystems (Parents, Kara, Laptev, East Siberian, Chukchi, West Bering and Arctic Sea LMEs). It will support the project key outcomes by i) implementing the agreed SAP–Arctic and incorporating an ecosystem-based approach into national, regional and local development strategies and plans; ii) introducing harmonized environmental mechanisms and/or structures including adoption of sustainable legislation, policy and institution; iii) incorporating and updating SAP-Arctic to reflect climatic variability and change in Russian Arctic especially at coasts and in LMEs; and iv) coordination of the implementation of the SAP-Arctic and AA2020.

Project consistency with national strategies and international activities:

The proposed project builds on the success of the UNEP/GEF RF NPA-Arctic project, aimed to catalyze actions leading to transformation impact to improve environmental status of Arctic coastal and marine ecosystems in accordance with priorities identified in the SAP-Arctic and endorsed by the Maritime Board at the Government of the Russian Federation in June 2009.

The project will support implementation of the Framework State Policy of the Russian Federation in the Arctic up to 2020 and beyond, the Marine Doctrine; the Environmental Doctrine and the Concept of the long-term socioeconomic development of the Russian Federation and the Federal Targeted Program “World Ocean”.

It will also contribute substantively to compliance with the relevant multilateral environmental agreements and programmes (CBD, UNFCCC, GPA, Ramsar) and input into international cooperation under a frame of the Arctic Council and its working groups (ACAP, PAME, AMAP, SDWG), and Arctic Marine Strategic Plan.

In 2009, the Tromsø Declaration of the Arctic Council noted the role that short-lived forcings such as black carbon, methane, and tropospheric ozone may play in Arctic climate change, and recognized that reductions of emissions of these compounds and their precursors have the potential to slow the rate of Arctic snow, sea ice, and sheet ice melting in the near term. The Arctic Council further established the Task Force on Short-Lived Climate Forcers (SLCF) to identify existing and new measures to reduce emissions of these forcings and to recommend further immediate actions that can be taken, and to report on progress at the 2011 Ministerial meeting.

Russian research institutes have randomly studied some aspects of black carbon emissions, their deposition on the snow and ice cover and the associated warming effects since the late 1980s. There has been no inventorying of sources of black carbon emissions in Russia, and no consolidated overview of scientific data on the problem.

Project overview:

The project will provide foundational support for facilitating regional multi-state cooperation; investments and demonstrations supported by other components. It includes five main areas of project activities: introduction of harmonized environmental legislation and institutional and management mechanisms/structures in AZRF; introduction of mechanisms for participation of indigenous peoples in nature protection and environmental rehabilitation and improving the efficiency of traditional nature use; improvement of legislation in order to prevent negative environmental impacts from mining oil and gas resources on the shelf; the Arctic Black Carbon (BC) and other SLCFs mitigation strategies; monitoring, evaluation, and coordination of SAP-Arctic and AA2020 implementation.

GEF Climate Change Mitigation, Biodiversity, and International Waters funding will be respectively sought in combination with substantial amount of co-financing. For the time being, pollution related activities will be funded by co-financing.

Component 1. Introduction of harmonized environmental legislation and institutional and management mechanisms/structures in AZRF.

It will involve activities on implementation of multilateral environmental agreements to which the Russian Federation is signatory, as well as strengthening environmental governance at the international, federal, sub-national and corporate level. Improving governance in AZRF will be implemented through the establishment of new institutional mechanisms of environmental governance incorporating ecosystem-based, adaptive approaches to management of the Russian Arctic ecosystems, and the involvement of representation of multiple stakeholders (i.e., the Arctic Forum) and the SAP-Arctic coordinating platform targeting regional environmental priorities. The Monitoring and Indicators Program will provide informational and organizational support to implementation of GEF projects, federal, regional, municipal, and corporate programs and activities of other stakeholders to reduce impacts on the Russian Arctic environment.

Interventions will also support mainstreaming of the integrated environmental management concept into socioeconomic development strategies for the Arctic Zone of the Russian Federation as well as introduction of Strategic Environmental Assessment procedures in territorial planning and development programs. It is expected that the proposed component will develop, present to and discuss with the key stakeholders, finalize and present for the Russian Federal government approval an Integrated Management Plan for the Russian portion of the Barents Sea, using national documents, assessments, experience and data, as well as best practices in the world (notably, Norwegian Barents management plan, as well as other successful examples).

The first preparatory stages for development of the plan were conducted by WWF Russia. Activities include mapping of the sensitivity and vulnerability to oil spills (in cooperation with Murmansk Marine Biological Institute), presenting and discussing the planning concept to key stakeholders (including federal and regional legislative and executive authorities, academia, key industries, public), creation of experts pool for further development of the Plan, and establishing good cooperation to international experts in the area.

Component 2. Introduction of mechanisms for participation of indigenous peoples in nature protection and environmental rehabilitation and improving the efficiency of traditional nature use.

It will focus on development of innovative models of interaction between state authorities and local governments, industrial companies and public organizations of indigenous people in the field of environmental protection, as well as financial mechanisms for joint environmental co-management. These tasks will be achieved through the following project activities, with the full participation of and in consultation with indigenous communities, private sector and other key stakeholders:

- Drafting legal and normative documents and feasibility studies for the establishment of the territories of traditional nature use by indigenous people;
- Proposals to enhance access by indigenous people to autonomous multifunctional complex facilities for energy and water supply;
- Creation of program for facilitation of environmentally sound use of traditional and renewable energy sources in AZRF;
- Programs to improve the effectiveness of traditional economic activity by using new technologies of more advanced processing of raw products and implementation of measures for active government support of traditional nature use by indigenous people (preferential procurement of their products by state, soft credits, tax, incentive pricing, etc.);
- Pilot projects on adaptation of traditional economic activities of indigenous people in AZRF to climate change and variables;
- Programs on engagement of indigenous people in direct participation in environmental projects, including projects to clean up contaminated land and the establishment of training centers;
- Program for the development of environmentally friendly forms of tourism in areas where traditional farming and indigenous cultural heritage and languages, folk arts and crafts are developed; and,
- Dissemination of knowledge about the best Russian and foreign practice of inclusion of indigenous people in the process of economic development, monitoring, environmental safety of places of traditional residence and economic activities – engaging of and support to Russian indigenous communities in critical science-based spatial planning processes for the Arctic and thereby building their capacity to engage in processes to improve governance of the Arctic.;
- Improvement of biodiversity conservation legislation (including Hunting Laws), both at the federal and regional level to balance the rights of indigenous people, wildlife conservation priorities and Russia’s commitments under relevant international conventions.

Component 3. Improvement of legislation in order to prevent negative environmental impacts from mining oil and gas resources on the shelf.

Under this component the following activities will be implemented:

- Analysis and improvement of legislation and normative documents regulating environmental requirements to exploration of hydrocarbon deposits on the continental shelf of the Russian Federation and its harmonization with the

- Assist to the development of normative documents on risk analysis in the operation of hazardous production facilities and elaborating a regulatory framework for liability insurance for injury to the conduct of operations during exploration, prospecting and development of hydrocarbons on the continental shelf of the Russian Federation;
- Development of regulations for innovative biotechnology remediation of oil-polluted areas; and,
- Development of emergency response system to oil spills for protection of especially sensitive coastal areas in the Barents sea and the White sea

Component 4. Arctic Black Carbon (BC) and other SLCFs mitigation strategies will focus on creation of the National Clearing-House Mechanism on BC and SLCFs: capacity development in monitoring and estimating emissions and transport of BC and SLCFs from different sources of emissions to snow and ice-covered areas; learning and knowledge management system on BC and SLCFs, awareness raising and information dissemination among local citizens, NGOs, expert communities and policymakers at the national, regional and local levels on the danger and harm of black carbon.

A clearing-house mechanism will facilitate the exchange of information on Russian Arctic BC and SLCFs and assist the Russian Federation to better cope with issues relating to short-lived climate forcers. The mechanism will also serve as a means to mobilize experience and expertise, including facilitation of effective scientific, technical and financial cooperation, as well as capacity-building. Global access to a variety of scientific, technical, environmental, legal and capacity building information will be provided through various communication channels in at least Russian and English languages.

Component 5: Monitoring, evaluation, and coordination of SAP-Arctic and AA2020 implementation

This component is aimed at establishment of institutional coordination mechanism and monitoring evaluation framework for the implementation of the SAP. Since the AA2020 is the main programme for the implementation of the SAP-Arctic, the mechanism for the monitoring and evaluation and institutional coordination for the SAP- Arctic will also be used for AA2020 monitoring, evaluation and institutional coordination mechanism. As discussed above, a Programme Implementation Monitoring Group (PIMG) and a revamped Inter-Agency Working Group will be responsible for such tasks.

A joint web portal will be developed in order to facilitate mutual learning and information exchange amongst projects and programs on SAP-Arctic implementation, monthly e-bulletin published to facilitate information exchange, and effective means for information dissemination and knowledge management developed and in operation.

Key participants and partners

UNEP is expected to be the GEF implementing Agency for the project.

Ministry of Economic Development RF, the Ministry of Natural Resources and Ecology RF, and regional administrations will be key Russian participants of the project.

Gasprom, Rosneft, Norilsk Nickel, other companies, municipalities, research institutes and universities, WWF Russia and other environmental NGOs will participate in the project as partners.

Arctic Council's ACAP Working Group, Arctic Council's Project Steering Group on SLCF, Swedish EPA, UNECE, U.S. EPA, Department of Agriculture and NOAA governmental and non-governmental organizations from other countries are key international participants and partners.

Financing and cofinancing

Sources of financing	Name of financier	Type of financing	Amount (\$)
GEF TF (CC, BD, and IW)		Grant	2,500,000
UNEP		In kind	250,000
US	USDA, EPA, NOAA	In kind, grants,	500,000
Nordic countries	NEFCO, NVV	Grants, soft loans	250,000
Government of Russia, regional, administrations,		Grants, in kind	9,000,000.00
Total financing			12,500,000

Project 2: Establishment of financial mechanisms and private public partnership for the SAP implementation

Justification of the problem:

As described for Project 1 above, the SAP-Arctic sets the goals, tasks, principal activities and targets in the area of protecting Arctic environment for the period up to 2020. The SAP-Arctic takes into consideration the growing importance of the Russian Arctic environment in national, regional and global contexts; as well as economic development impacts on, and consequences of changes in, the Arctic climate and ecosystems. To achieve the set objectives and implement the actions in the SAP-Arctic, financial resources will need to be mobilized through a partnership among the financial institutions, private sectors and public institutions.

Project objectives:

The proposed Project 2 for establishment of financial mechanisms is also directly devoted to the SAP-Arctic Implementation and supports the underlying goal of the Arctic Agenda 2020 Programme in mobilizing domestic and international financial resources. The project aims to assist the Russian Federation in promoting sustainable and integrated environmental management as well as mainstreaming low-carbon development into the federal and regional programmes and financing programmes of the Russian Arctic. The specific objectives of the proposed project are two-fold: (i) strengthening and improving national financial systems to provide a means to address management of transboundary problems in the Arctic LME and to address climate change mitigation in the Russian Arctic; and (ii) establishment of financial mechanisms and public-private partnership

schemes to promote low-carbon, environmentally-sound development practices and to demonstrate and evaluate technological and non-technological mitigation options.

Project consistency with the GEF focal area strategies:

This project will contribute to the implementation of the Focal Area Strategies and Strategic Objectives for GEF-5, particularly Climate Change focal area Strategic Objectives CCM -2: Energy Efficiency: Promote market transformation for energy efficiency in industry and the building sector, and with CCM-3: Renewable Energy: Promote investment in renewable energy technologies; and Strategic Objectives for International Waters IW- 2: “Implementation of agreed Strategic Action Programmes (SAPs) incorporates ecosystem-based approaches to management of LMEs, ICM principles, and policy/legal/ institutional reforms into national/local plans”.

The proposed project will support the project key outcomes by i) help implement the agreed SAP–Arctic; ii) introducing harmonized environmental mechanisms and/or structures including innovative financial solutions (i.e., Arctic Environmental Fund) for pollution reduction, climate change mitigation.

Project consistency with national strategies and international activities:

The proposed project is aimed to catalyze actions and financial resources leading to transformational impact to improve environmental status of Arctic coastal and marine ecosystems in accordance with priorities identified in the SAP-Arctic and endorsed by the Maritime Board at the Government of the Russian Federation in June 2009.

The project will support implementation of the Framework State Policy of the Russian Federation in the Arctic up to 2020 and beyond, the Marine Doctrine; the Environmental Doctrine and the Concept of the long-term socioeconomic development of the Russian Federation and the Federal Targeted Program “World Ocean”.

Project overview:

The project will be comprised of the following two components. Concerning the activities related to climate change mitigation, GEF Climate Change Mitigation and International Waters funding will be sought in combination with substantial amount of co-financing. The pollution related activities will be implemented as the core part of the SAP implementation, but will rely on co-financing and partner interventions. Upon ratification of the Stockholm Convention by the Russian Federation, The Russian Federation will become eligible for GEF POPs and Chemicals funding, and project proposals associated with this project for GEF POPs funding will be developed to constitute an integral part of the AA2020.

Component 1: Establishment of the Arctic Environment Fund

The Arctic Environment Fund (AEF) will facilitate the Russian Federation to secure sustainable financing for implementation of underlying goals and objectives of the programme "Arctic Agenda 2020." The AEF's goal is to leverage adequate financing to help supporting implementation of the package of priority investments, clean-up projects, market transformation for environmentally sound technologies, pilot projects on elimination of past environmental damage and climate change mitigation measures, and environmental rehabilitation of the "hot spots" in the Russian Arctic including priority projects identified by regional and municipal governments in the Murmansk oblast, the

Arkhangelsk oblast, the Nenets Autonomous Okrug, the Komi Republic, the Republic of Sakha (Yakutia) and the Chukotka, Khanty-Manci, and Yamal-Nenets Autonomous Districts.

The AEF will support Russia's efforts to address past environmental damages by putting in place a Past Environmental Liabilities (PEL) programme in the Arctic. These activities will be implemented in close cooperation with the "Russia Addressing Past Environmental Liabilities Project" that is under preparation by the World Bank and the Government of the Russian Federation. Interventions will aim to strengthen the operational and legal framework to identify, record, assess, and prioritize PEL in the Russian Arctic. Support will be provided to establishment of the Information Center on PEL in the Russian Arctic and development of a system to record and disseminate best practices in PEL management. The system will be used as a knowledge and capacity building tool. The project will also support the creation and function of a Technology Advisory Facility for rehabilitation of "hot spots" and clean-up best practices identified and widely shared/distributed among the Arctic environmental monitoring network. Specific intervention will also include development of criteria, indicators and measuring tools to evaluate progress in rehabilitation of "hot spots" as a result of the project's activities.

As part of the contaminant related activities of AEF, AEF will also support a pilot project on mercury reduction in priority sectors of AZRF and demonstration activities on sound chemicals management throughout their life-cycle in ways that lead to the minimization of significant adverse effects on human health and the environment. Until Russia successfully accesses GEF POPs and chemicals funding, co-financing from different sources will be used for pollution related activities to be implemented under AEF. Once Russian Federation's accessibility to GEF POPs and Chemicals funding is established, GEF POPs projects will be established as part of the AEF. This component will include AEF management framework including project pipeline developing, projects appraisal, structuring, contracting, supervising and monitoring.

The proposed AEF component will work with the existing regional institutes and facilities (including the Arctic Council, the Barents Euro-Arctic Council, Barents Hot Spots Facility, and Northern Dimension) toward effective and proper establishment of the Fund, as well as to enhance technical and financial cooperation related to pollution hot spots and to promote projects to mitigate climate change in the Russian Arctic areas.

AEF will be established in a form of trust fund administered by Vnesheconombank. The AEF's Supervisory Board will be established to provide policy guidance, to make financial decisions, and to approve projects for support. The Supervisory Board will consist of representatives of key ministries, Vnesheconombank, other interested organizations.

Component 2: Developing and implementing innovative Public-Private Partnership Programmes for environmental protection

Sub-component 2.1: The Public-Private Partnership Programme (PPP) for promoting environmental investments in the Russian Arctic will establish legal and regulatory platforms for supporting public-private partnerships with the participation of key industrial and energy companies operating in the region, banks and other financial institutions, interested federal, regional and municipal authorities, and international partners. Interventions will aim at strengthening Russia's capacity for PPP development on environmental protection, including improvement of legal framework, introduction of modern PPP management and financial instruments, training and institutional capacity

building, and implementation of PPP pilot projects in selected regions in the Russian Arctic. Partnerships established as a result of the project's activities will significantly intensify participation of the Russian business in protection of the Arctic marine and terrestrial environment through the Arctic Council and its working groups, Barents/Euroarctic region and Northern Dimension Partnership, as well as through bilateral cooperation programs with the Arctic states. It is expected that NEFCO, EBRD, Nordic Investment Bank will actively participate in development and implementation of this PPP program.

This sub-component will include pilot and demonstration projects for monitoring and improving living condition of local and indigenous people; reducing impacts of pollution and climate change on health of indigenous peoples; restoration/conservation or protection of coastal and marine resources in the Russian Arctic regions; promoting the demonstration and transfer of innovative low-carbon technologies; sustainable ecosystem management and produce measurable results through participation of local communities and indigenous people in traditional nature use and sustainable land management in Arctic. Such projects will scale-up results of demo projects achieved during the 1 phase NPA – Arctic project implementation, in particular, on creation of stable co-management practices to strike the balance of interests of extracting companies and indigenous communities. RAIPON and other indigenous people's organizations will play an active role in this sub-component development and implementation.

Sub-component 2.2: PPP for promoting integrated low-carbon energy-waste-water municipal programs in the Russian Arctic.

This sub-component will encourage comprehensive interventions through integration of energy, water and waste solutions with multiple benefits. Local governments and private sector will play an important role in implementing these solutions. Among specific interventions are technical assistance in urban and rural planning, development of innovative financial mechanisms and schemes, awareness raising, and investments in demonstration and deployment of high-performance energy efficient technologies

The project will complement the ongoing energy efficiency (EE) projects under GEF umbrella "Russia Energy Efficiency Programme" – a partnership of UNDP, EBRD and UNIDO involving key Russian federal sectoral agencies and regional authorities. The projects of this program aimed to Improving EE in GHG-intensive industries; introducing EE standards and labeling, transforming markets for EE lighting; and improving EE in municipal buildings and urban housing.

The project will also cooperate with the Russia Energy Efficiency Financing (REEF) Project that is under preparation by the World Bank, Ministry of Energy, Russian Energy Agency, and Gazprombank. The WB's project aimed to unlocking the financing potential of large, commercial banks with regards to financially attractive EE investments primarily in industrial sector, while the SAP- Arctic Implementation project will address wider range of energy-waste-water municipal projects through creating targeted legal and economic conditions for PPP and financial structuring of priority environmental and EE municipal programs. Vnesheconombank will provide the specialized expertise on PPP development and arrange financing programs on water-supply and waste-water management; municipal solid waste and industrial waste management; energy efficiency (including heat supply, small power and energy saving).

Key participants and partners

World Bank is expected to be the GEF implementing Agency for the project.

Ministry of Economic Development RF, Ministry of Natural Resources and Ecology RF, regional administrations and Vnesheconombank will be key Russian participants of the project.

Gasprom, Rosneft, Norilsk Nickel, other companies, municipalities, research institutes and universities, environmental NGOs will participate in the project as partners.

NEFCO, Nordic Investment Bank, Arctic Council's ACAP Working Group, governmental and non-governmental organizations from other countries are key international participants and partners.

Financing and cofinancing

Sources of financing	Name of financier	Type of financing	Amount (\$)
GEF TF (CC)		Grant	6,000,000.00
Russian companies		Equity, in kind,	20,000,000.00
Government of Russia, regional, administrations, Vnesheconombank		Grants, equity financing, in kind	40,000,000.00
IBRD		Loan	100,000,000.00
Total financing			166,000,000.00

Project 3. Conserving Biodiversity in a Changing Arctic

Justification of the problem:

Russia covers nearly half of the total terrestrial Arctic and hosts a significant portion of the total remaining natural habitats for Arctic Fauna and Flora. In addition to hosting endemic Biodiversity of global importance, the Russian Arctic also provides the critical feeding and breeding grounds for a large number of species and populations of migratory birds and mammals that periodically gather there in large numbers (e.g. over 100 million birds gather in the arctic during the summer season). These species are in fact a shared resource with many other countries from all the continents of the world. For example, almost all birds found in the Arctic region are migratory, undertaking long annual migrations that connect the Russian Arctic with virtually any place on Earth apart from the Inner Antarctic Ice shield. Over 280 bird species breed in the Russian Arctic including migratory waterbirds that depend on Arctic tundra habitats, such as waders, geese and swans, eiders, gulls, divers and cliff nesting seabirds. Many species are unique to the Russian Arctic. Seven species are globally threatened, three of them 'critically endangered' and twenty are included to the Russia Red Data Book. For several of them, e.g.: critically endangered Spoon-billed Sandpiper and Kittlitz Murrelet, endangered Red-breasted Goose and Lesser White-fronted Goose there are still no national conservation strategies and plans and conservation measures are far below the necessary levels. Forty Arctic bird and mammal species and subspecies have been identified as rare, vulnerable or endangered. Sixty-two mammal species, mainly marine mammals, are partially or totally dependent on Arctic ecosystems and habitats. Terrestrial mammals, particularly ungulates, need large expanses of undisturbed habitat for feeding, breeding, and seasonal migrations. Large areas are also required to compensate for the relatively low nutrient levels in the vegetation at high latitudes. Russia shares many populations of these mammals with other Arctic countries. Many species of both flora and fauna are declining for reasons including habitat change, over-harvesting, illegal harvesting and rapid changes in land use that are linked with the increasing accessibility of the Arctic due to climate change. Arctic tundra habitats and wetlands are also very rich in organic soils that, in undisturbed conditions, will continue to serve as one of the most important natural carbon storage systems in the planet. Conservation of these vast habitats will therefore not only contribute to the conservation of globally important biodiversity that is shared by Russia and many other countries, but also to climate change mitigation.

Russia has established along its territory a Protected Area System consisting of more than 12,000 Protected Areas in a number of different categories. About 20 federal nature protected areas are situated within the CAFF boundary. Therefore the Russian Arctic has currently a large system of protected areas with satisfactory coverage; however the management effectiveness of this PA network remains weak and requires significant improvement.

Outside Protected Areas, the national system of wildlife management in the Russian Arctic has been degrading gradually since the collapse of the Soviet Union. In particular, the lack of resources for the monitoring of wildlife population trends is not allowing a proper evaluation of the levels of sustainability of existing wildlife use practises. This is compounded by an ongoing massive level of poaching and lack of controls and law enforcement over huge territories. This situation has already caused the severe degradation of a number of harvested wildlife populations of e.g. reindeer and numerous species of game birds. Serious pressure of subsistence hunting was reported for a number

of threatened species' populations, including i.e.: Stellers and Spectacled Eiders, Emperor and Lesser-white fronted geese etc. As another example, the Illegal catch at large scale of Gyrfalcons, that are then illegally traded in and outside Russia, continues to take place particularly in the Chukotka and Kamchatka. Polar Bears and Walrus are regularly killed illegally for skin and tusks trade. Various human activities have already affected the Russian Arctic considerably: habitat fragmentation by roads, off-road tracks, surface pipelines, mining activities, and logging; unsustainable reindeer herding and grazing, with up to 20% of the tundra zone severely affected and severe damage observed in the forest tundra zones; die-off of forest and other vegetation types; and local pollution connected with prospecting, extraction, processing, and transportation of oil, gas, and mineral resources. Thawing of the permafrost, which underlies the thin biologically active layer in the Arctic regions, augments disturbances and makes restoration efforts extremely difficult.

The proximate and root causes of these threats are the results of changes of political and administrative systems for last two decades, which have severely undermined the socio-economic infrastructure in rural areas; weak institutional and enforcement mechanisms; and poorly controlled local economic development activities including use of wildlife resources. National and global market demands have intensified the pressure on Arctic natural resources such as oil, gas, minerals and timber. In addition, processes resulting from climate change cause flooding, draining, and cryogenic transformation of land.

Subsistence harvesting of wildlife resources plays an important role in supporting the survival of local communities and is an important component of the traditional way of life for 16 small nations of indigenous peoples of the Russian Arctic. Existing legal regulations and practises aiming to support the livelihoods of indigenous peoples and biodiversity conservation, are often in contradiction among themselves and need to be harmonised. There is an urgent need to develop mechanisms for increased dialogue at all levels of society on the subject of conservation and sustainable use of wildlife resource. This should be complemented by the improvement of legislation and implementation of new regulations, as some of the most urgent and important tasks on the path towards the sustainability of wildlife resource use in the Russian Arctic. This challenging issue was addressed only to a limited extent by the recent large conservation projects in the area. Therefore the proposed project is set to play a pioneering role in addressing this issue, that is equally important for both biodiversity conservation as well as to sustain the traditional livelihoods of the people living in the Arctic.

Project objective:

Enhance biodiversity conservation and carbon sequestration under changing climate conditions and other environmental pressures across the Russian Arctic through sustainable wildlife resource management and mainstreaming biodiversity conservation priorities in decision making processes at federal, regional, local and indigenous communities levels, supported by increase of efficiency of protected areas system, a modern integrated knowledge-base and wildlife monitoring programme, and the implementation of National Species Conservation Strategies within and outside protected areas.

Project consistency with the GEF focal area strategies:

The project is consistent with the Biodiversity focal area Strategic Objectives BD1 and BD 2. Strategic Objective BD-2: "Mainstream biodiversity conservation and sustainable use into production landscapes, seascapes and sectors", will be supported through the

following project elements: (i) implementation of National Species Conservation Strategies for species of major concern at national and global level. The Flagship Species conservation approach will be used to ensure benefits to ecosystem conservation on a wider scale; (ii) supporting the mainstreaming of biodiversity conservation priorities in policy and decision making processes at all levels; (iii) engaging with key stakeholders such as local communities, indigenous peoples and extractive industries in evaluating and adjusting the utilisation patterns of wildlife resources to sustainable levels under a changing climate and environmental conditions. The implementation of Strategic Objective BD-1: “Improved Sustainability of Protected Area Systems” will be supported by improving management effectiveness and integration of PAs into regional conservation and land-use plans. The project will build professional capacity and develop essential planning tools and consultation mechanisms to support the conservation and sustainable use of globally important biodiversity in both protected and non-protected areas. In addition, the project will also contribute to improving the climate resilience of the protected areas system of the Russian Arctic by i.e. developing recommendations for a review of the boundaries of PAs in the face of a changing climate, to ensure the continued protection of important habitats and species. In addition to the above, the project will also contribute to climate change mitigation by supporting the conservation of Arctic ecosystems that are well-known to play a critical function as a major and globally significant “storage” of potent green-house gases such as CO₂ and methane.

Implementation is planned in different parts of Russian Arctic, to be identified in more detail during the PPG stage in consultation with all relevant stakeholders. A careful site identification process will seek to ensure an efficient use of project resources and to achieve maximum conservation impact, at sites with optimal demonstration and replication potentials, while also ensuring the long-term sustainability of all project interventions. Preliminary identified key model areas of the project include the Chukotka and Taimyr regions. However the benefits of the project will extend to wider areas where the implementation of some components is planned, including i.e. selected regions of Nenets District, Yakutia (Sakha) and Kamchatka. A thorough assessment of risks, opportunities and prior experiences will be conducted at PIF development and PPG implementation stages, thus ensuring a transparent and well-documented rationale for the selection of each model area.

Project consistency with national strategies and international activities:

The project will contribute to meeting of international commitments of the Russian Federation under Convention on Biodiversity Conservation, Ramsar Convention, East Asian-Australasian Flyway Partnership, bilateral agreements on migratory birds with Japan, USA and Korea and other relevant MEAs. Russia actively participated in the work of Arctic Council’s working group Conservation Arctic Flora and Fauna (CAFF) and “Arctic Climate Impact Assessment” and supports the recommendations made in the ACIA Policy document. This project will propose and test a number of approaches and methods, including trend assessment based on CAFF criteria and the Circumpolar Biodiversity Monitoring Program (CBMP) indicators.

The project builds on substantial experience of the GEF in supporting biodiversity conservation projects in the Russian Federation, in particular, ECORA, Conservation and sustainable use of biological diversity in Russia’s Taimyr Peninsula: Maintaining connectivity across the landscape and others. It will complement the ongoing GEF projects: “Strengthening the Marine and Coastal Protected Areas of Russia” and “Mainstreaming biodiversity conservation into Russia’s energy sector policies and

operations”, whose objective is to address to barriers to effective mainstreaming of biodiversity conservation in three major energy sectors in the Russian Federation: oil and gas, coal and hydropower.

Project overview:

Component 1. Enhanced effectiveness of biodiversity conservation in the Russian Arctic under changing climate conditions

- (i) Evaluate and adjust the patterns of utilisation of wildlife resources, with a primary focus on ensuring compatibility between the needs of indigenous and local communities and the conservation and sustainable use of biodiversity under changing conditions. This will entail, i.e.: assessing the sustainable harvest levels for selected arctic wildlife species, e.g. using “wild commodity indices” and developing strategies to monitor and periodically adjust the current uncontrolled harvest pattern to sustainable levels (model groups may include: migratory waterbirds, reindeer, walrus and seals – mainly in the Russian Arctic Far East). This will include an analysis and incorporation of best practices of US and Canadian Fish and Wildlife Services as well as Nordic countries experience;
- (ii) Improve capacity to evaluate the impact of climate change – identify changes in biodiversity and the implications for the management of wildlife resources for indigenous communities and local people. This will entail e.g. identification of trends in changes of climate seasonally and regionally, developing illustrative case studies and providing recommendations for improvement of conservation measures of selected threatened and sustainably harvested species.
- (iii) Assess and demonstrate the value of climate change mitigation of the Arctic system of protected areas and the Arctic ecosystems that are a major and globally significant “storage” of potent green-house gases.
- (iv) Engage with local communities and indigenous peoples to ensure their local and traditional knowledge is integrated with scientific knowledge in developing indicators, conservation strategies and implementations practices on all levels of decision making. Lobby recognition of local knowledge as a source of information for governmental agencies. Development of standard methods of collecting and analysing local knowledge.

Component 2. Mainstreaming biodiversity conservation priorities in decision making processes at all levels of society

- (i) Providing financial incentives for biodiversity conservation in the areas surrounding existing Protected Areas, through the establishment of collaborative partnerships between extractive industries, local population, indigenous communities and PAs Management structures (Possible case studies may include the following areas nearby to: Putoranskiy, Taimyrskiy, Nenetskiy, Koryakskiy Zapovedniks and in Chukotka – specific areas to be selected at PIF development and PPG implementation stages). Development of regional-level conservation planning schemes involving all key players;
- (ii) Developing and supporting the implementation of National Species Conservation Strategies for flagship species of major concern nationally and globally (Polar Bear, Atlantic Walrus, Spoon-billed Sandpiper; Red-breasted Goose, Lesser White-

- (iii) Assessment of the influence of key factors that are negatively impacting selected endemic endangered migratory species within and outside the Arctic region, and identification of most urgent conservation measures to address them;

Component 3. Improving the effectiveness of protected areas management in the Russian Arctic and integration of PAs into regional conservation schemes along with non-protected areas

- (i) Initiate the analysis of existing information to underpin a revision of the design (e.g. structure, type, size, shape and distribution) of the regional PA network in selected model regions (Taimyr and Chukotka), so as to maintain and improve the integrity and representativeness of the PA system to compensate for and mitigate the increasing pressure on biodiversity and wildlife resources in the Arctic under a changing climate;
- (ii) Enhance PA management effectiveness at selected critical model areas to respond to observed and predicted climatic changes and associated shifts in land use in the Russian Arctic;
- (iii) Support the designation of the “Beringia” international park as a keystone and model PA to showcase optimal strategies for sustainable wildlife resources management integrating traditional approaches by indigenous communities. Incorporation of best practices from Alaska;

Component 4. Developing integrated knowledgebase and monitoring programme

- (i) Establishing an Arctic Biodiversity knowledge-base at the Arctic Research Centre within ARRINC of the Russian Ministry of Natural Resources, with the mandate and capacity to track and analyse the observed and measured changes in the Russian Arctic and setting them in the circum-arctic context
- (ii) Develop and start implementing the monitoring program for selected species, focusing on migratory birds and marine mammals and in coordination with CBMP(CAFF), integrating the monitoring networks of Protected Areas, Polar Stations and biological stations into an enhanced GIS database
- (iii) Develop a suite of biodiversity indicators that allow the tracking of changes in a rapidly changing environment, and regularly assesses the sustainability of controlled wildlife resource use practices and wildlife management in the context of the entire population for a given species;
- (iv) Enhance national capacity to provide timely and valuable inputs to reports on the status and the progress of biodiversity conservation status in the Russian Arctic under international initiatives, such as CAFF, EAAFP, AEWA, Ramsar and CBD indices.

Key participants and partners:

UNEP is expected to be the GEF implementing Agency for the project.

Ministry of Natural Resources and Ecology and network of regional branches and protected areas as well as regional administrations will be key Russian participants of the project.

All-Russian Research Institute for Nature Conservation, other research institutes and universities, WWF-Russia and other environmental NGOs, and selected companies will participate in the project as partners.

Arctic Council's Working Group CAFF, UNEP-WCMC, GRID-Arendal, RSPB, BirdLife International, WWT, US FWS, AEWA, EAAFP, governmental and non-governmental organizations from USA, Canada, Denmark, Sweden, Norway, Finland, UK, Germany and other countries are key international participants and partners.

Financing and co-financing

Sources of financing	Name of financier	Type of financing	Amount (\$)
GEF TF		Grant	6 500,000.00
International CSOs, conservation NGOs & conservation partners	Arctic Council's Working Group CAFF, EAAFP, AEWA, WWF, BirdLife International, RSPB, WWT, US FWS, and other governmental and non-governmental organizations from USA, Canada, Denmark, Sweden, Norway, Finland, UK and Germany	In-kind and grants	5,500,000
International Organisations	UNEP & UN partner organisations: WCMC, GRID A	In-kind	500,000
National Government	Government of Russia, regional administrations, companies	Grants, equity financing, in kind	6,500,000.00
Total financing			19,000,000.00

Project 4. Integrated River Basin Management for major Arctic rivers to achieve comprehensive benefits

Justification of the problem

The Arctic Ocean is more impacted by river runoff than other parts of the World Ocean and receives about 11% of the total world's river runoff. The runoff of the Arctic rivers comprises more than 4,300 km³. The largest flows are coming from the Lena, Yenisei, Ob', Mackenzie, and Northern Dvina rivers. The first three are among the ten world's largest rivers.

Possible scenarios of climate change in the XXI century obtained through model calculations and analyzed in the Arctic Climate Impact Assessment Report projected the total increase in Arctic rivers' runoff of 10 to 20% or 300-400 km³ and winter runoff – 40-50% a year by 2050.

Strong increase in freshwater runoff from the rivers running into the Arctic Ocean may have substantial impact on its physicochemical characteristics such as decrease in water salinity, especially in coastal areas, increase in average water temperature and changes in sea currents. Taking into account that the Arctic Ocean plays an important role in formation of the global climate, changes in physico-chemical properties of water have a strong impact on climate in the other regions of the World, particularly in the Northern Europe.

The change in physicochemical characteristics of the water masses of the Arctic Ocean, primarily the desalination of adjacent seas, the change in hydrological conditions of estuarine areas will significantly affect the biodiversity in marine and estuarine ecosystems.

Climate change caused by desalination of the Arctic Ocean surface waters, in its turn, will further impact global redistribution of precipitation and further change in the regime of Arctic rivers. The above feedback is one of the important factors influencing global climate change, however, physical mechanism of this feedback are not completely clear

An increase in the water content of Arctic rivers and change in their ice conditions, increase in frequency of catastrophic floods and floodings directly influence the transport of pollutants by rivers and their discharge into the Arctic Ocean. Suspended sediments in river waters transporting pollutants will be widely spread in coastal areas of adjacent seas with the increase in water content of Arctic rivers, extending the area of possible pollution.

Intensive business activities such as oil and gas production, navigation, fishery, mining operations, water and hydraulic engineering, industrial and civil construction, transport of freight by winter roads are conducted in the basins of Arctic rivers, estuarine and coastal areas of Arctic countries. Following the Arctic strategies of northern countries, it can be stated that intensity of these activities will significantly increase in the near future.

All above activities in one way or other are associated with moistening, of the areas, rivers' hydrologic and ice conditions, and their water pollution level. The changes in these characteristics that have occurred for the last 20-25 years under climate changes and will occur in the future may seriously disturb the functioning of these industries.

The basins of Arctic rivers are populated by the indigenous peoples of the North, who are considered as one of the most vulnerable groups of population on the Earth in respect to

climate change, because their traditional way of life is intricately connected with the environment. Changes in water regime of rivers, estuaries and adjacent seas will strongly impact their way of life and economic activity.

The basins of Arctic rivers cover important ecosystems that are unique, fragile and vulnerable to changes. These ecosystems include permafrost, tundra, taiga forests. The deltas formulated at the river mouths of the large Arctic rivers have unique ecosystems, but vulnerable to changes in the hydrological schemes of these large Arctic rivers, which may be associated with climate change. Incorporating biodiversity conservation in the river basin management, especially water resources management has not been achieved in Russia.

The basins also include the permafrost where large amount of carbon is currently stored. Most permafrost was formed during cold glacial periods; in the past, it has remained throughout warmer interglacial times, including over the past 10 000 years¹³ (IPA 2010a). With global warming, however, the store of carbon held in permanently frozen organic matter buried in permafrost could gradually melt, emitting greenhouse gases— including potent methane —into the atmosphere and exacerbating climate change through a positive feedback loop. Climatic conditions and ground temperatures are the major factors affecting permafrost thickness and stability. On average, permafrost has warmed by up to 6°C during the 20th century¹⁴. Widespread loss of discontinuous permafrost will change hydrologic processes and trigger erosion or subsidence of these ice-rich landscapes, increasing the incidence of natural hazards for people, structures, roads, and communication links¹⁵ (Rekacewicz 2000). In addition, and very importantly, it releases carbon dioxide (CO₂) and methane to the atmosphere. Arctic permafrost contains 950 gigatonnes of organic carbon (C) within the first few surface metres of permafrost; by comparison, the atmosphere currently contains about 750 gigatonnes of organic carbon¹⁶. Increasing concentrations of CO₂ in the atmosphere between now and 2100 are expected to stimulate plant growth in the tropics, leading to a projected intake of ~160 Gt more carbon by photosynthesis. This carbon sink figures in calculations of the global carbon balance, which is central to projecting climate change. 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 under PCF is not currently figured into most climate projections. The river basins of the large Arctic rivers contain permafrost areas. The degradation of permafrost area is associated with change in hydrological schemes in these river basins. Introduction of improved river basin management schemes would lead to mitigation of the ongoing and potential emission of green house gasses from the permafrost.

In this project, the Lena River basin is selected to be a pilot basin to achieve improved river basin management schemes address biodiversity and climate change mitigation concerns as well as water resources related benefits.

¹³ IPA. (2010a). International Permafrost Association. <http://ipa.arcticportal.org/resources/what-is-permafrost> (Last accessed on February 21, 2011).

¹⁴ NSIDC. (2008). National Snow and Ice Data Center: State of the Cryosphere. 2008. <http://nsidc.org/sotc/permafrost.html> (Last accessed on February 24, 2011).

¹⁵ Rekacewicz, P. (2000). "Change in permafrost temperature in Fairbanks (Alaska)." UNEP/GRID-Arendal Vital Climate Graphics. <http://maps.grida.no/go/graphic/change-in-permafrost-temperature-in-fairbanks-alaska> (Last accessed on February 24, 2011).

¹⁶ Walter A., Grosse, G., Jones, B. (2009). "Positive and negative feedbacks to climate change associated with methane emissions from arctic permafrost systems." American Geophysical Union, Fall Meeting. The Smithsonian/NASA Astrophysics Data System, 2009. <http://adsabs.harvard.edu/abs/2009AGUFM.B43F..06W>. (Last accessed on February 24, 2011).

The main goal of this project is the capacity building needed for making political, economic, environmental and social decisions for the Arctic region and developing the strategy of integrated water management in the basins of large Siberian rivers in order to minimize a negative effect of the change in their conditions on climate change in the Arctic region, change in the biodiversity in estuarine and adjacent sea ecosystems, increase in accumulation of pollutants transported by river runoff in the Arctic Basin and on the quality of life the people in coastal areas of Arctic countries.

The project will be implemented by the example of basins of such Russian rivers as the Lena, Ob' and Northern Dvina along with the basin of the Mackenzie River (Canada), rivers of North Norway and the Yukon River (USA). The effect of change in large Arctic rivers runoff on the biodiversity will be studied by the example of the above rivers' estuaries and LMEs of the Barents, Kara, Laptev and Beaufort Seas and for the central Arctic Basin. The Pasvik River will be considered as an example of transboundary cooperation in the management of waterworks facilities, which runs in the territory of three Arctic countries: Norway, Finland and Russia.

The assessment of current changes in freshwater runoff of the above rivers will be based on global scenarios developed with the fourth Intergovernmental Panel on Climate Change Report. In the preliminary assessment of the Arctic climate change trends the results of the project for the assessment of climate change in the Arctic ACIA will be used, as well as more recent SWIPA project results implemented within the Arctic Council.

In the course of the project implementation, the results will be used obtained during the implementation of the Arctic-HYCOS project and the IPY Arctic-HYDRA project.

Project consistency with the GEF focal area strategies:

The project is consistent with GEF strategic objective IW-3 Capacity Building: *“Support foundational capacity building, portfolio learning, and targeted research needs for joint, ecosystem-based management of transboundary waters systems”* and provide input in its key outcomes: 3.1. Political commitment, shared vision, and institutional capacity demonstrated for joint, ecosystem-based management of waterbodies and local ICM principles; and 3.5: Political agreements on Arctic LMEs help contribute to prevention of further depletion/degradation. The project is also consistent with GEF strategic objective BD-2: Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes/Seascapes and Sectors

The proposed project serves both needs by supporting globally relevant assessment of climate change impact on runoff, ice regime, and permafrost melt in basins of the three Siberian rivers and Arctic Ocean coastal zone and by piloting Action Plan to climate-resilient IWRM in the Lena River basin. The project builds capacity for planning large-scale interventions aimed at adaptive management to ice and permafrost melt in the river basins and water-related sectors in the Russian Arctic and Subarctic providing diagnostic analysis of climate change impact. It will propose regional policy, legal, and institutional measures for adaptive IWRM aimed to mitigate the negative direct and inverse climate change damage to Arctic LME. The project is of global relevance and significance, with accumulate experiences and lessons for other Nordic countries as well as inform future GEF interventions in the field of climate adaptation to melting ice in high latitudes and altitudes.

Project consistency with national strategies and international activities:

Under the Federal Targeted Program “Ecology and Natural Resources of Russia” (2002-2010) a set of studies has been commissioned for assessment of climate change impact on Arctic water systems. There are several sectoral programs targeting climate change impact on water systems of the Arctic, including programs of Roshydromet (monitoring and assessment programs) and Russian Academy of Sciences (“Environmental and climate change: natural disasters,” “Natural processes in polar regions and their development during the next decades”).

The Russian Federation actively participated in the International Polar Year, one of the priorities of which was to implement the international cluster “ARCTIC-HYDRA” and develop capacity for modernization of the hydrological observation system in the Russian Arctic. Some activities aimed at the assessment of climate change impact on water resources and hydrological conditions of specific Arctic river basins.

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, was lacking global perspective on the role of Arctic rivers on the formation of hydrological regime of the Arctic Ocean and regional climate patterns. Very few on-the-ground capacity building activities were initiated at that stage. Third component of the proposed project builds upon experiences obtained by the DWC project and as such is strongly supported by the International Secretariat of the DWC.

During recent years, Republic Sakha (Yakutia) has undertaken a number of measures directed at integrated water resources management of Lena River basin. The Republic has developed Recommendations on Climate Change Adaptation Strategy in Water Management and Flood Preparedness at the Lena Basin. Specific recommendations concerned changes in water conditions of basin rivers due to climate change, size of flooded zones during spring, list of impacted settlements and infrastructure as well as recommendations for changing facilities regulating river discharge and municipal and industrial water supply.

With adoption of the Climatic Doctrine in December 2009 Russia has started to develop policy interventions aimed at support of climate change adaptation measures, including adaptation in water-related sectors.

Forth and Fifth National Communications of the Russian Federation to the UNFCCC specifically defined climate change adaptation needs in the water sector of the Russian Arctic. For Russian Arctic and Subarctic this requires specific measures aimed at infrastructure changes, flood preparedness including monitoring and assessment, protective constructions against coastal erosion and etc.

Outcomes of the project will make important input in the Arctic Council’s project Climate Change and the Cryosphere – Snow, Water, Ice and Permafrost in the Arctic (SWIPA), Module 3: Hydrology, Rivers and Lakes and Module 4: Ice caps and small glaciers (2008 - 2011) and close linkages between both projects 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 significant too.

Project overview:

It is an innovative project that will propose and test a number of approaches and methods having high replication potential both in Russia and abroad.

Component 1: Assessment of climate change impact on runoff, ice regime, and permafrost melt in basins of Arctic rivers and circulation of the Arctic Ocean and adjacent seas.

Since the existing climate scenarios have poor regional coverage that is not enough for the development of specific response plans including regional plans of water resources and river basin management under forecasted climate change. 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 take into account the results of global and regional atmospheric models. The implementation of this modelling will result in obtaining forecast values of the runoff of the Arctic rivers into the Arctic Ocean and changes in their ice characteristics as well as changes in the regimes of estuarine areas and adjacent Arctic seas for the medium (2020) and long (2050) terms. Also the parameters will be evaluated for permafrost degradation and its role in the change in the hydrological cycle and increase of river runoff.

Within the framework of component 1, the impacts of changing hydrological schemes on the functioning of the ecosystem and biodiversity will be assessed and forecast for such changes will be obtained for the above periods (Biodiversity benefits). Further impacts of melting permafrost and change in hydrological and geomorphologic dynamics in these river basins on the release of stored carbon will be assessed (climate change mitigation benefits).

Also the current and forecasted changes in transport and accumulation of persistent toxic substances to the Arctic basin due to the change in hydrological conditions of large rivers and permafrost degradation will be assessed.

Component 2: Developing strategies of ecosystem-based river basin management, including management of waterworks facilities located in the basins of Arctic rivers.

The component provides for the development of strategic measures of economical, environmental and social nature to ensure maintained functioning of water management systems and minimize the impact of changes in the water regime on freshwater, estuarine and marine ecosystems and quality of people's life by the example of the three above rivers of the Russian Arctic in respective coastal areas for mid and long term prospects. A platform of river basin managers around the Arctic countries will be established to share the experiences of assessment and management of Arctic river basins, especially the results obtained for the Mackenzie and Yukon Rivers and the rivers of Northern Norway. An Arctic wide strategy for river basin management will also be developed through such a platform. Based on the Arctic-wide river basin management strategy, the strategic measures for the three Russian Arctic river basins will be developed using cost-benefit analysis based on the importance (scale of possible losses if not implemented), economic expediency, availability of technical and material resources for their implementation, and social consequences. The recommendations will be given for including such measures into specific federal and regional programs and strategic plans dealing with water management in the Arctic.

Component 3: Developing the recommendations and action plan for integrated river basin management (IRBM) for the Lena and Pasvik river basin.

The Lena River is among the largest rivers flowing into the Arctic Ocean and its runoff is already increased by 39% during last 20-25 years. Higher incidence of catastrophic floods and permafrost degradation caused by global warming have serious impact on water management infrastructure and social conditions of life of indigenous peoples of the North. The choice of the Lena basin as an example is associated with the fact that during recent years, Republic Sakha (Yakutia) has undertaken a number of measures aimed at integrated water resources management integrated river basin management. Within the framework of Global Dialog 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 adapting to the changing hydrological regimes. In developing the Integrated River Basin Management plan, consideration is also given to impacts of changing hydrological schemes on the biodiversity, particularly downstream biodiversity, and on possible release of stored carbon, particularly in permafrost. By considering these aspects in the river basin management plans, the water management sector can mainstream biodiversity and climate change mitigation in their strategic approaches. The list was composed of vulnerable populations and infrastructure elements and the measures were determined to ensure stable operation of municipal and industrial water supply. The Lena river section is a pilot case of mainstreaming the biodiversity and climate change in water sector activities and thus is drawn on the GEF Biodiversity and Climate Change mitigation funding.

The Pasvik River basin is the only waterworks facility in the Arctic located in the territory of three Arctic countries: Norway, Finland and Russia. The development of the IWRM action plan will become a real example of transboundary cooperation in developing strategies of the management of water resources facilities in the Arctic.

The IWRM plans will have separate sections addressed to mid (2020) and long terms (2050) activities under climate change and socio-economic development scenarios.

Key participants and partners:

UNEP is expected to be the GEF implementing Agency for the project. Further UNEP GPA Coordination office will provide technical input to provide input to the development of ecosystem-based river basin management, which is closely linked with the coastal zone issues and management.

Ministry of Natural Resources and Ecology RF, Roshydromet, Government of Sakha Republic, Government of Yamalo-Nenets Autonomous District and the Russian Geographic Society will be key Russian participants of the project. Research institutes and universities, environmental NGOs and selected 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 working on similar issues coordinated via Arctic Monitoring and Assessment Program (AMAP) of the Arctic Council. It is proposed to designate this project as an official AMAP project giving it international recognition, visibility, and assure further replication and use of its results in the circumpolar Arctic region.

Financing and co-financing

Sources of financing	Name of financier	Type of financing	Amount (\$)
GEF TF		Grant	2,000,000
UNEP		In kind	200,000
Other international organisations and Arctic countries			600,000
Government of Russia, regional, administrations, companies		Grants, equity financing, in kind	4,800,000
AMAP Secretariat		Grant	150,000.00
Dialog on Water and Climate International Secretariat		Grant	150,000.00
Arctic-HYDRA IPY Program		In-kind	100,000.00
Total financing			8,000,00.00

Project 5. Integrated adaptive management of the West Bering Sea Large Marine Ecosystem in a Changing Climate

Justification of the problem:

The WBS LME is a highly productive and species-rich region situated off the northeast coast of the Russian Federation opposite Alaska (US territory), that encompasses the Russian Exclusive Economic Zone (EEZ) and the intensely exploited international waters of the deep Aleutian Basin (“Donut Hole”). The WBS LME supports 450 species of fish, crustaceans and molluscs, many of which are commercially important, 25 species of marine mammals (e.g. polar bears, whales, walruses and sea lions), including the endangered Stellar sea lion, and a variety of seabirds. The formation and extent of seasonal sea-ice is the key physical factor driving both the high levels of primary production and the life cycle of many marine species, and hence is the major factor determining the productivity of the entire LME.

The magnitude and nature of the WBS LME’s biological productivity has provided for both indigenous and non-indigenous communities living in the region’s coastal and inland settlements for over 200 years. However, this important ecosystem is now showing signs of stress, which include declines in fishery yields, marine mammals and seabird populations, increased levels of contaminants in the coastal waters, sediments and bio-accumulated in the food chain, and a reduction in the cover of seasonal sea ice. The observed changes in the ecosystem threaten the productivity and biodiversity of this ecosystem and hence the livelihoods, food security and health of the communities that have remained dependent upon these resources for generations. The purpose of the proposed project is to achieve sustainable and integrated ecosystem-based management of the WBS LME whilst taking into account the increasing need for adaptation to climate change and variability. The project will aim to meet this through identifying the priority concerns affecting the LME’s status as well as their underlying root causes, and by integrating these in a national ecosystem-based management framework founded on regional and bilateral coordination and cooperation.

A preliminary assessment of the main threats in the WBS LME¹⁷, using the modular LME approach (productivity, fish and fisheries, pollution and ecosystem health, socioeconomics, and governance), allowed for the identification of three major perceived problems and issues: (a) decline in commercial fish stocks and unsustainable harvesting of living marine resources; (b) degradation of the quality of marine and coastal environment from land-based and increasingly maritime sources; and (c) uncertainty regarding ecosystem status due to climate change and variability, with secondary effects on fisheries production, increased exposure to persistent toxic substances (PTS) and the socio-economic status of coastal communities.

Project objective:

Sustainable and integrated ecosystem-based management of the West Bering Sea Large Marine Ecosystem and demonstration and implementation of innovative measures through targeted pilot projects, promoting cooperative resource management and safeguarding ecosystem productivity in the context of climate change and variability.

¹⁷ The evaluation was based on previous transboundary assessments, including the Russian-American Long-Term Census of the Arctic (RUSALCA), the Arctic Climate Impact Assessment (ACIA, 2004), and the Arctic Council initiatives AMAP, ACAP and PAME.

Project consistency with the GEF focal area strategies:

Under the GEF-5 Focal Area Strategies for International Waters, the Project is fully in line with GEF strategic objective IW-2: *“To Catalyze multi-state cooperation to rebuild marine fisheries and reduce pollution of coasts and Large Marine Ecosystems while considering climatic variability and change”*, resulting in bilateral political commitments in support of the sustainable integrated and ecosystem-based management of the WBS LME, with particular emphasis on ecosystem productivity, fisheries exploitation and adaptation to climate change and variability, and promoting innovative solutions towards cooperative resource management and reduced pollution. The project is also in line with GEF strategic objective IW-3: *“Support foundational capacity building, portfolio learning, and targeted research needs for joint, ecosystem-based management of transboundary waters systems.”* The project will meet the GEF IW-3 expected outcomes by (i) Agreeing on priority transboundary concerns of the WBS LME through a multi-country technical/scientific assessment (TDA equivalent) identifying priority issues, and their immediate and root causes; (ii) Identifying knowledge gaps and improving understanding of the state of the LME’s functioning and in the context of climate change, through predictive ecosystem modelling, long-term monitoring (e.g. RUSALCA) and knowledge sharing (e.g. geospatial database); (iii) Catalyzing national and bilateral cooperation and coordination for sustainable and adaptive LME and integrated coastal management through governance reform, the formulation of a multi-state West Bering Sea-specific SAP and the establishment of a national inter-ministerial committee; (iv) Demonstrating and implementing innovative measures through targeted pilot projects, promoting cooperative resource management and safeguarding ecosystem productivity.

Project consistency with national strategies and international activities:

The SAP –Arctic set the goals, tasks, principal activities and targets in the area of protecting the Russian Arctic marine environment including the prevention and reduction of negative consequences of natural and human-caused disasters, including those caused by global climate change. Through analyses and gap-filling exercises, the proposed project will identify key activities to be undertaken in the WBS LME and strengthen institutional capacity through joint regional interventions which are in line with those identified in the Environmental Diagnostic Analysis SAP-Arctic.

In December 2010 the Russian Government adopted the Strategy for development of maritime activities in the Russian Federation up to 2030. The Strategy sets the key targets, among other important tasks, as follows: improving the information security of maritime activities, and ensuring the safety of navigation and protection of the marine environment from pollution from ships through the development of navigation and hydrographic support of shipping.

The Arctic Council PAME’s Work Plan for 2009-11 consists the task on “review the assessment of Arctic marine shipping and, based on the findings, develop recommendations to the International Maritime Organization (IMO) and others, as appropriate, to guide the management of Arctic marine shipping”. Another task of this Work Plan is to develop and implement pilot projects to operationalize the 5 module LME assessment and management approach to the West Bering Sea LME.

The Russian-American Long-term Census of the Arctic (RUSALCA) was a collaborative effort between the Russian Federation and the USA towards joint long-term exploration and scientific research in the Arctic Sea regions, covering both the Bering and Chukchi Seas. The Programme commenced in 2004 and stemmed from the 2003 Memorandum of

Understanding for World Ocean and Polar Regions Studies between NOAA and the Russian Academy of Science. RUSALCA's principal aim was to monitor the biological, geological, chemical and oceanographic characteristics of the Bering and Chukchi Seas to establish benchmark information about the region's environmental parameters as well as the distribution and migration patterns of the region's biota in the light of future climate change and variability. Although the RUSALCA programme is now finished, there is a need for further long-term monitoring of ecosystem functioning in this part of the Arctic. The proposed project will therefore aim to continue the RUSALCA programme to monitor ecosystem status and change in order to inform on the adaptive approach in the sustainable, ecosystem-based management of the WBS LME.

The four-year Marine Electronic Highway (MEH) Programme was first demonstrated by the IMO and GEF in the Straits of Malacca and Singapore in 2006¹⁸. The programme's main development objectives were to increase the efficiency of marine transport through the Straits, reduce its negative environmental impacts, and strengthen the conservation and management of neighbouring marine and coastal environments. In the WBS LME increasing trends in the reduction of sea-ice makes the Arctic region more accessible to a range of shipping activities, from cruise liners to commercial vessels. It is therefore proposed that the project will incorporate a MEH Pilot Programme, providing an innovative solution for the safety of navigation and prevention of environmental degradation from maritime transport in the Bering Sea and Bering Strait.

Through its Marine Programme, WWF Russia is involved with local communities and the fishery sector, including coastal fishing enterprises, regional fishery councils and large industries such as the Alaska Pollock Catchers Association and Kamchatka salmon coastal fisheries, to promote the introduction of responsible fishing practices and ecosystem-based fisheries management (including the reduction by-catch and improvement of operational practices) and to combat Illegal Unreported and Unregulated (IUU) fishing. WWF Russia's Marine Programme agenda is fully in line with the objectives of the fishery component of the WBS LME project. Synergies with WWF programme will be explored during the PPG.

UNDP now oversees the new IW: Learn3 project "Strengthening IW Portfolio Delivery and Impact", which will support the development of new knowledge management activities including the preparation of a TDA/SAP training course, and a new GEF-IW manual.

Project overview:

The proposed project will promote broad stakeholder participation at national and international level, and build upon and coordinate with existing initiatives to create an integrated, adaptive and ecosystem-based management framework aiming to reduce the unsustainable harvesting of fishery resources, reduce the risk of future degradation of the quality of the marine and coastal environment, and explore and help implement adaptive management measures to the anticipated changes in the global climate. The proposed project will address the above through three inter-related components:

Component 1: State of the WBS LME within the framework of the 5 LME modules of productivity, fish and fisheries, pollution and ecosystem health, socioeconomics, and governance. Three major outcomes will be achieved under this component. Priority transboundary issues of the WBS LME, and their immediate and root causes will be

¹⁸ The concept of a marine electronic highway (MEH) was initiated in Canada in the early 1990s with the application of digital technology to navigation, particularly in the development of electronic navigational charts and the Electronic Chart Display and Information System (ECDIS).

agreed upon through a multi-country technical/scientific assessment which is TDA equivalent. The project will thus aim to gain a better understanding of the functioning of the WBS LME and maintain this by creating a West Bering Sea specific geospatial database within the framework of the 5 LME modules and climatic data, as well as a strengthened joint long-term programme of monitoring changes in the WBS ecosystem. This will contribute to better understanding of the climate change impact on the LME's functionality, which will be supported by predictive ecosystem modeling of species composition and distribution in changing climatic conditions and by the development of climate change scenarios for the Arctic with predicted impacts on the marine living resources and coastal zone. A key outcome of this component will be the identification of any knowledge gaps which need to be addressed in order to create a sound basis for ecosystem-based and adaptive management of the WBS LME.

Component 2: National and regional, sustainable and integrated ecosystem-based management of the WBS LME and its coastal zone in a changing climate. Based on the outcomes under Component 1, a multi-country regional Strategic Action Programme will be developed for the management of the WBS LME resources and coastal zone. In combination with targeted joint regional interventions (in line with those identified under the Arctic NAP) and established stakeholder participation mechanisms, this will enable appropriate governance reforms, at policy, legal and institutional level, to address the priority transboundary issues identified under Component 1. By the establishment of a functioning National Inter-Ministerial Committee, with national policies, regulations and standards incorporating ecosystem-based management approaches and ICM, and with the necessary sustainability mechanisms in place, the proposed project will aim for improved national inter-sectoral coordination allowing the sustainable use and management of WBS LME resources and its coastal zone. The outcomes of this component will thus lay the foundations for a regional, joint management framework protecting the shared resources of the LME (which is not included in the scope of this project).

Component 3: Targeted demonstration projects. In the light of increasing climate change and variability, it will be crucial to develop innovative and adaptive solutions ensuring the continuous protection of WBS LME resources, while increasing awareness and enabling the sustained socio-economic development of the LME's indigenous populations and coastal communities. The proposed project will therefore include a number of demonstration and awareness projects at sub-regional and local level, addressing issues such as fisheries management, integrated coastal management and adaptation to climate change, and involving the key stakeholders including the indigenous people and coastal populations. An important aspect of this component will be the development of a Pilot Marine Electronic Highway programme for the Bering Sea and Bering Strait in cooperation with the IMO. This programme will provide an innovative solution for the safety of navigation and the prevention of environmental degradation from maritime transport in this region.

Key participants and partners:

UNDP is expected to be the GEF implementing Agency for the project.

Roshydromet, the Ministry of Natural Resources and Ecology, regional governments and the Russian Academy of Science will be key Russian participants of the project. Selected municipalities, institutes and companies will participate in the project as partners.

Arctic Council's Working Group PAME, IMO, NOAA are key international participants and partners.

Financing and co-financing

Sources of financing	Name of financier	Type of financing	Amount (\$)
GEF TF		Grant	3,500,000
UNDP	UNDP	In kind, grants,	300,000
US	NOAA		6,200,000
Government of Russia, regional, administrations, companies		Grants, equity financing, in kind	4,000,000
Multilateral agency	IMO	TBD	TBD
NGO	WWF-Russia	In kind	TBD
Total financing			14,000,000

Project 6. Targeted support for energy-efficiency and renewable energy in the Russian Arctic

Justification of the problem

The Arctic Region has a vast potential for improved energy efficiency and sustainable energy investments considering the region's harsh climate, outdated and inefficient energy supply in isolated areas (mostly relying on mazut-fired heat generation), ample opportunities for renewable energy generation such as wind, small-hydro, geothermal and biomass (wood waste), as well as potential for the utilization of associated petroleum gas in the oil-rich regions otherwise flared by local oil companies.

However, investments in municipal infrastructure projects in the Arctic Region is complicated due to the specific profile of municipalities in the region characterized by a relatively small size of municipal companies and relatively weak financials of individual municipalities, many of which rely on federal budget transfers and support.

Project objective:

The project objective is to support targeted investments in climate mitigation in the Russian Arctic through establishing a special investment vehicle for support to small and medium size EE municipal infrastructure projects and market development for off-grid renewable energy and local energy resources.

Project consistency with the GEF focal area strategies:

The project is consistent with the Climate Change focal area's Strategic Objectives CCM - 2: Energy Efficiency: Promote market transformation for energy efficiency in industry and the building sector, and with CCM-3: Renewable Energy: Promote investment in renewable energy technologies. It will support such outcome as i) "Sustainable financing and delivery mechanisms established and operational", and ii) Investment in renewable energy technologies increased. GHG emissions avoided due to investments will be the key indicator of the outcomes.

Project consistency with national strategies and international activities:

Basics of State Policy of the Russian Federation in the Arctic among the main priorities include increasing the use of renewable and alternative, including local energy sources, introduction of energy-saving materials and technologies.

The EBRD is committed to supporting energy efficiency and renewable energy in Russia by providing debt and equity financing, donor-funded technical support to clients for project development, as well as policy support to government aimed at establishing effective regulatory framework for energy efficiency and renewable energy investments. In 2009 the Bank signed a Memorandum of Understanding with the Ministry of Economy of the Russian Federation regarding the implementation of a Sustainable Energy Action Plan for Russia, thereby pledging to scale up support in the area of energy efficiency. Since the launch of its Sustainable Energy Initiative in 2006, the Bank has provided over € 1.6 billion of its own financing for energy efficiency projects in Russia for a total project size of over Eur 8.4 bln.¹⁹ These projects cover all sectors of the Russian economy, including private industry, small and medium sized companies, power and natural resource sectors, municipal infrastructure. Municipal infrastructure is one of the key sectors for EBRD and the Bank has already provided over EUR 800 million to support 43 municipal infrastructure projects in Russia for a total project size of EUR 3,56 billion.²⁰

The EBRD is actively working in the region covered by the GEF Russian Arctic Program – financing energy efficiency in municipal infrastructure, gas flaring reduction and industrial energy efficiency projects.

For example, over the past 10 years the Bank has financed 7 projects in the Khanti-Mansi region alone, for a total investment amount of over RUR 6,5 bln. (EUR 162,5 mln.). The projects related to retrofit and energy efficient upgrade of municipal infrastructure. Past projects in the region covered by the Arctic Program also include financing municipal water services development in Archangelsk (in Roubles, for a total amount equivalent to EUR 8,6 million), whereby part of the project has been co-financed with an Northern Dimension Environmental Partnership (NDEP) grant., as well as RUB 1.5 bln. loan provided for modernisation of district heating system in Sakha Republic (Yakutia).

EBRD is also active in promoting gas flaring reduction projects in the region. In 2010 EBRD has provided a \$87 million loan to an independent Russian company Monolit to finance the construction of a gas processing plant and begin commercial utilisation of the Associated Petroleum Gas (APG) from the Zapadno-Salymskoe oil & gas field in the Khanty-Mansi region, jointly controlled by two oil and gas companies.

Finally, EBRD is active in supporting industrial energy efficiency projects in the region. In 2009 the EBRD has raised \$250 million in long-term funding for Integra oil service company, which operates several manufacturing facilities in Russia producing drilling equipment. As part of this transaction EBRD arranged an energy audit of Integra's production facilities in Tyumen (Khanti-Mansi region), which helped identify profitable energy saving opportunities leading to 29% energy savings (typical projects related to the upgrade of compressors, boilers, heat treatment units, etc.). Some of these investments have been included in the EBRD financing package.

All these projects rely on extensive donor-funded support provided to clients for technical feasibility studies, project preparation and implementation.

It must also be noted that some of the regions covered by the Arctic Program (e.g. Murmansk, Arkhangelsk) also fall under the Northern Dimension Environmental Partnership (NDEP). NDEP provides investment grants to projects implemented in these

¹⁹ SEI number represents EBRD's own investment, excluding syndication with commercial banks and own funds of a project's sponsor

²⁰ Total project size figure includes co-financing of other IFIs, commercial banks and project sponsors

regions, and it will be beneficial to consider providing similar investment grants under the GEF Arctic Program as this would provide for “equal opportunities” for all projects in the Russian Arctic (as NDEP only covers North-West of Russia) and also as such investment grants would catalyse project development and make them more viable and bankable for EBRD and other lenders. UNDP has the impressive climate change portfolio of projects in Russia, primarily on energy efficiency improvement in different sectors. The project will complement the ongoing EE projects under GEF umbrella “Russia Energy Efficiency Programme “ – a partnership of UNDP, EBRD and UNIDO involving key Russian federal sectoral agencies and regional authorities. The projects of this program aimed to Improving EE in GHG-intensive industries; introducing EE standards and labeling, transforming markets for EE lighting; and improving EE in municipal buildings and urban housing. The project will also cooperate with the Russia Energy Efficiency Financing (REEF) Project that is under preparation by the World Bank, Ministry of Energy, Russian Energy Agency, and Gazprombank.

Project overview:

Component 1. Special investment vehicle for support to small and medium size energy efficiency and renewable energy projects.

In order to allow EBRD financing to be channeled into projects in small and medium size municipalities in respective regions a special investment vehicle need to be established for energy efficiency and renewable energy projects developed under the Strategic Action Plan for Arctic Region.

Such vehicle might be created on a region by region case or, it might be more efficient to create such a vehicle on a inter-regional level (a financing framework established for small projects through commercial banks may also be considered). This approach would enable bundling small projects which would otherwise be beyond the reach of direct EBRD lending. EBRD would then consider providing financing to this vehicle supported by regional guarantees. The availability of additional regional guarantees to be made available for projects under the Arctic Program is paramount as would facilitate financing of projects implemented by municipalities or companies with insufficient capacity to provide additional security to investors but with viable investment plans for sustainable energy projects. It is also expected that a consultation process with regions will be launched by the Ministry of Economy – so as to facilitate the development of project pipeline for EBRD and other financial institutions.

Financing to be provided by EBRD under the program will be combined with GEF-funded technical assistance for energy efficiency project development (including energy audits, specific feasibility studies, etc.). Such combination of financing and technical advisory will help address financial and knowledge / capacity barriers impeding sustainable energy investments in the Russian Arctic Region.

The types of sustainable energy projects which will be developed and considered for financing will include:

- energy efficiency upgrade in municipal infrastructure (district heating generation and transmission networks upgrade, co-generation, energy efficiency improvements at water supply companies, municipal waste utilization, etc),
- utilisation of biomass in district heating networks (e.g. fuel switch – from mazut to woodwaste),

- biogas in water supply,
- off-grid renewables in remote regions (e.g. installation of hybrid wind-diesel units to partially replace expensive diesel-based energy generation, small hydro, and possibly geothermal) ,
- gas flaring reduction , i.e. utilisation of associated petroleum gas in oil-rich regions such as Khanti-Mansi (i.e. utilisation of processed liquefied petroleum gas for heat and power generation in remote areas).
- other sustainable energy technologies and projects tailored to specific characteristics of individual cities or regions will be explored.

As far as gas flaring projects are concerned, the focus of EBRD intervention will be concentrated not on oil and gas majors (which have obligations to reduce gas flaring according to Russian legislation), but on municipalities themselves (which have no such obligations). The absence of a regional market for processed associated gas is among the barriers to associated gas utilization in Russia (as oil and gas companies do not have the ability to sell processed gas locally), and the Bank would focus on conducting feasibility studies for municipalities to assess the potential for converting municipal boilers to utilise processed associated gas (or creating a retail market for liquefied petroleum gas-LPG at the level of individual households).

A link of such municipal projects with supply-side, i.e. EBRD-sponsored gas flaring reduction projects with oil and gas companies in the Arctic Region will be enhanced. EBRD is active in financing oil and gas companies (which could be financed directly without the need for regional guarantees based on strong balance sheet of these companies), and the support which would be provided to municipalities with regards to creating the market for processed associated gas will facilitate further investments of oil and gas companies into APG processing. Eligible projects with other private companies (e.g. in the power sector – related to installation of renewable energy sources such as small-hydro) may also be financed directly on a stand-alone basis and will be explored as part of the Arctic Program.

It is intended that a Project Implementation Unit funded through the GEF grant will be procured by the EBRD and deployed in the Russian Arctic to work with municipalities, regional energy efficiency centers and other stakeholders to prepare bankable energy efficiency and renewable energy projects (should a financing facility be established through locally based commercial banks, these banks could also serve the role of monitoring project implementation in accordance with EBRD guidelines). This would also allow transferring necessary technical and financial structuring skills to the regions. Considering the remote location of the project sponsors, the role of the Project Implementation Unit would also be to supervise and support implementation of the projects.

Finally, it is expected that a flexible approach will be applied with regards to the selection of cities and regions covered by the Arctic, as the borderline for the Arctic Region is not defined clearly.

Component 2. Market development for off-grid renewable energy and local energy resources.

The component will encourage technical assistance in urban and rural planning, development of legislative and normative base at the sub-national and municipal level, capacity building, awareness rising regarding enhanced use of renewable energy and deployment of high-performance renewable energy technologies in AZRF. The

component will support activities developed in the regional and municipal energy efficiency programs elaborated in 2010.

Expected key outcomes of the component:

- Subnational and municipal programs on renewable energy in Murmansk and Arkhangelsk regions and in Republic Sakha (Yakutia) developed and supported by investments;
- Regional and municipal normative acts needed for implementation of the RER programs and projects, including regional guarantees to projects financed by EBRD and other international financial institutions;
- Feasibility studies for model projects on deployment of bioenergy, heat pumps, wind, and hybrid technologies;
- Completed public awareness campaigns addressing advantages of modern renewable energy technologies on expert level and public level;
- Replication strategy and completed dissemination activities on sub-national and local level and success stories on renewable energy development recognised in other municipalities

It is envisaged that although limited in geographical and time scope, this project will have a transformative and catalytic impact on the promotion of clean energy in the Russian Arctic without compromising its fragile environment.

Key participants and partners.

EBRD and UNDP are expected to be the GEF implementing Agencies for the project. EBRD will be responsible for the Component 1, and UNDP will be responsible for the component 2.

Ministry of Economic Development RF, regional administrations and municipalities will be the key Russian participants of the project.

Other federal ministries, Vnesheconombank, companies and non-governmental organizations will participate in the project as partners.

It is expected that NEFCO, Nordic Investment Bank, and governmental organizations from other Arctic countries will participate in the project preparation and implementation.

Financing and cofinancing

Sources of financing	Name of financier	Type of financing	Amount (\$)
GEF TF		Grant	7,000,000.00
Russian companies		Equity, in kind,	20,000,000.00
Government of Russia, regional and municipal administrations, Vnesheconombank		Grants, equity financing, in kind	15,000,000.00
EBRD		Loans, equity	70,000,000.00
Total financing			112,000,000.00