United Nations Development Programme

Country: Belarus

PROJECT DOCUMENT

Project Title: Conservation-oriented management of forests and wetlands to achieve multiple benefits

UNDAF Outcome(s): By 2020, policies have been improved and measures have been effectively implemented to increase energy efficiency and production of renewable energy, protect landscape and biological diversity and reduce the anthropogenic burden on the environment.

UNDP Strategic Plan: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.

Expected CP Outcome(s): 3.1: Solutions developed at national and subnational levels for the sustainable management of natural resources, ecosystem services, chemicals and waste; and 3.2 Legal and regulatory frameworks, policies and institutions able to ensure the conservation and sustainable use of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation.

Executing Entity/ Implementing Partner: Ministry of Natural Resources & Environmental Protection of the Republic of Belarus

Implementing Entity/Responsible Partners: UNDP

Brief Description: Belarus' forest and wetland ecosystems are of global significance for the unique biodiversity they harbor and the conservation of these ecosystems is important to realize a significant reduction of the current rate of biodiversity loss at the global, regional and national levels. Belarus has 26 Ramsar Sites, three Biosphere Reserves and 51 Important Bird Areas. The forests and wetlands of Belarus are home to 25 species that are classified by IUCN as vulnerable and critically endangered. The project scenario introduces changes to management of forests and wetlands in and outside of key biodiversity areas with the objective of making it financially more sustainable and more efficient with respect to the conservation effect. The focus on both Key Biodiversity Areas (KBAs) and surrounding landscape is justified from the Aichi Target and ecosystem approach perspectives, recognizing that protection of natural capital only within PAs is not going to improve its status.

Programme Period:	2016-2020
Atlas Award ID:	00090217
Project ID:	00096096
PIMS #	5495
Start date:	1 March 2017
End Date	31 December 2021
Management Arrangements	NIM
PAC Meeting Date	04 Aug 2016

Total resources required, USD	18,493,561	
Total allocated resources, USD	18,493,561	
Project budget, USD	**4,298,561**	
GEF, USD	4,263,561	
UNDP, USD	35,000	
Parallel financing:		
UNDP, USD		1,465,000
Ministry of Environment, USD		2,900,000
Ministry of Forestry, USD		8,000,000
OAO "Turauschyna", USD		1,050,000
Institute of Experimental Botany of the NAS of Belarus, USD		60,000
NPC NAS of Belarus on bioresources, USD		690,000
Reserve "Nalibiksky", USD		30,000

Ministry of Natural Resources and Environmental Protection of Belarus:
Mr. Andrei M. Kovkhuto
Minister

UNDP:
Mr. Zachary Taylor
Resident Representative a. i.

Table of contents

ACRONYMS AND ABBREVIATIONS

APR/ PIR	Annual Project Review/ Project Implementation Reports
BD	Biodiversity
CC	Climate Change
CCM	Climate Change Mitigation
CP	Country Programme
CPD	Country Programme Document
CR	Critically Endangered
EN	Endangered
ERC	Evaluation Resource Center
EU	European Union
EX-ACT	Ex Ante Carbon Balance Tool
FSC	Forest Stewardship Council
GEF	Global Environment Facility
GEFSEC	Global Environment Facility Secretariat
GEST	Greenhouse Gas Emission Site Type
GHG	Greenhouse Gas
GIS	Geographic Information System
HCVF	High Conservation Value Forest
ID	Identifier
IUCN	International Union for Conservation of Nature
JSC	Joint Stock Company
LD	Land Degradation
LULUCF	Land Use, Land Use Change and Forestry
METT	Management Effectiveness Tracking Tool
MNREP	Ministry of Natural Resources and Environmental Protection
MSP	Medium Size Project
MTE	Mid Term Evaluation
NAS	National Academy of Science
NBSAP	National Biodiversity Strategy and Action Plan
NIM	National Implementation
NPD	National Project Director
NT	Near Threatened
PA	Protected Area
PAC	Project Appraisal Committee
PB	Project Board
PIMS	Project Information Management System
PMU	Project Management Unit
PPG	Project Preparation Grant
PPR	Project Progress Report
PSC	Project Steering Committee
QPR	Quarterly Progress Report
RSC	Regional Service Center
RTA	Regional Technical Advisor
SBAA	Standard Basic Assistance Agreement
SFM	Sustainable Forest Management
STAP	Scientific and Technical Advisory Panel
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
VU	Vulnerable

1. SITUATION ANALYSIS

1.1. Overview of biodiversity values

The Republic of Belarus is located almost in the geographical center of Europe, covering an area of 207,600 square kilometers. It is bordered by Poland in the west, Lithuania in the northwest, Latvia in the north, Russia in the northeast and Ukraine in the south. The relief of the country is relatively flat, with the highest point standing at 346 meters above sea level. Belarus hosts a divide between two geobotanic regions: the region of European Broad-Leafed Forests and the region of Eurasian Coniferous Forests. The physical, geographical, and climatic characteristics of the country have resulted in an abundance of forests and wetland ecosystems, covering 8.6 million ha and 0.86 million ha respectively (together accounting for about 43 percent of the territory). The northern part of the country, also known as the Belarusian Lake District, is characterized by large coniferous woods and numerous lakes, bogs, and rivers. The central part hosts vast agricultural and industrial landscapes. The southern part, also known as the woodlands, is well known for its fen and transition mires, broad-leafed forests, crisscrossed by Flatland Rivers with extremely waterlogged floodplains.

These forest and wetland ecosystems are of global significance for the unique biodiversity they harbor and the conservation of these ecosystems is important to realize a significant reduction of the current rate of biodiversity loss at the global, regional and national levels. Belarus has 26 Ramsar Sites, three Biosphere Reserves and 51 Important Bird Areas. The forests and wetlands of Belarus are home to 25 species that are classified by IUCN as vulnerable (VU) and critically endangered (CR). These include substantial populations of European bison *Bison bonasus* (VU; 24.3% of global population); aquatic warbler *Acrocephalus paludicola* (VU; 25.8-43.0% of global population), and greater spotted eagle *Aquilla clanga* (VU; 10.9-12.3% of global population). Belarus is also home to species categorized by IUCN as near threatened (NT) such as great snipe *Gallinago media* (NT; 3% of global population), black-tailed godwit *Limosa limosa* (NT; 8%), and Eurasian curlew *Numenius arquata* (NT; 0.3%). The European bison is the largest land-based mammal of the Palearctic region, and the last and only representative of wild bison in Europe. It is a symbol of the country and a flagship species.

Belarus' forest and wetland ecosystems are also of global significance for their role in maintaining climate and land integrity. Peatlands – globally recognized as one of the most valuable and at the same time, most threatened types of natural habitats[1] – are found all across Belarus, but are most prevalent in the north and the south. Forested and open natural peatlands are a significant carbon stock being the most carbon-dense ecosystems of the terrestrial biosphere. However, peatlands affected by degradation pressures change from being a carbon sink to a source and are affected by loss of soil carbon and soil fertility. To ensure that the above outlined benefits in terms of biodiversity conservation, climate change mitigation, and maintaining land integrity are secured, it is critical to understand and address the drivers of degradation.

1.2 Drivers of degradation of forest and wetland ecosystems

1.2.1 Effectiveness and sustainability of management of forest and wetland ecosystems in globally important protected areas is inadequate with respect to protection of species

Belarus' key wetland and forest sites that harbor globally significant biodiversity include: Nalibokski, Zvanets, Sporovsky, Olmany mires, Pogost meadow (within national park Mid Pripyat), Turov meadow, Servech, and Dikoe fen mire (within national park Belovezhskaya Puscha). These are all protected areas and are the target of the project. The management plans stipulate priority conservation actions needed for optimal management and non-deterioration of the internationally important biodiversity. However, the

[1] Wise Use of Mires and Peatlands: Background and Principles including a Framework for Decision-Making, Hans Joosten and Donal Clarke, 2002

declaration of this conservation priority is still not embedded in forest and wetland management practices in these key protected areas (PAs). Some examples are provided below.

The forests in and around PAs where European bison exist have been managed in a way which has left very little open space between vast massifs. Bison populations require those spaces, and need them to have high production; in their absence the bison move in many cases to agricultural fields for food, resulting in conflicts with agricultural enterprises and local farmers. The open spaces in fact used to exist in most of the forests populated by the European Bison, but due to the fact that they have not been maintained as such, they have become overgrown and lost the original vegetation composition. Mosaic forest planning and management in the habitat of the European bison is one of the main prerequisites to maintain its population. A financially sustainable mechanism for creation or restoration of meadows within forests, accompanied by carefully designed paths and observation points (for research and tourism purposes) need to become a standard forest management approach in such areas. This will help to sustain the food base of this species that is associated with meadow communities and their productivity in spring and fall.

Many forest PAs with globally important biodiversity are attractive sites for domestic and international tourism and recreation. Yet, by recent assessment, this potential for generating revenues that can be reinvested into conservation is not being fully exploited. Private ecotourism and agro-tourism has developed widely in the past 5 years, with many local farmers now hosting tourists on weekends, holidays or business trips. However, very few have established strong links to PAs. The tourism sector, and local communities engaged in it, lacks appropriate marketing and promotion approaches as well as a revenue-sharing mechanism with the conservation sector. By independent assessment, with appropriate marketing and revenue-sharing mechanisms involving local communities, tourism linked to European bison, aquatic warbler, and other flagship species could raise the income of PAs by at least 15%.

In wetland PAs, the primary cause of the loss of habitat is disruptions in the ground water table and negative vegetation successions i.e., the overgrowth of open wetlands with shrubs (including invasive species), willows and reeds. Passive protection alone (formal designation, limiting mining, agriculture or other resource extraction activities), does not lead to optimal conservation status of these sites. The biodiversity value of open fens and bogs of Belarus is the result of long-term human-nature interaction. Before the 1950s (i.e. before large areas were drained), reeds, shrubs and woody vegetation would be prevented from emerging by local people who would cut peatland vegetation by hand for hay. Once large neighboring areas had been drained in the mid-1950s, local farmers got easy access to large neighboring newly dry areas for hay-making. As a result, cutting of un-drained peatlands fell dramatically, and by 2012 virtually ceased. Although shrubs and woody vegetation are not typical to open peatlands, when they emerge and when people do not cut them, their proliferation can be very quick. This is because drainage of surrounding areas leads to lowering of the groundwater table and changes in the nutrient structure of soil and water in a way which favors the spread of shrubs and trees. By 2012, the proliferation of shrubs and trees onto open fens and bogs had grown to a dramatic extent, threatening the very existence of open fen and bog peatlands as a biotope. This negative succession of vegetation entails disappearance of unique species of flora and fauna found only on open peatlands. The populations of threatened bird species such as great snipe, curlew and aquatic warbler have been badly affected by this process. These species are indicators of the overall health of the peatland ecosystems, and their decline signifies the overall degradation of the peatlands they breed in. Furthermore, the proliferation of shrubs and undergrowth in the peatland floodplains of the Pripyat River has become so dense that it has started to block the stream of the river, leading to higher levels of spring floods and more devastating consequences for infrastructure and dwellings along the river. Uncontrolled expansion of shrubby and woody biomass at Belarusian peatlands has been increasing over the past 30 years. These sites harbor over 30% of the global populations of aquatic warbler and greater spotted eagle, and their loss would be a significant decline in the global population. As an example, in Zvanets, proliferation of shrubs led to a drop in aquatic warbler numbers from 5,500 to 2,300 singing males, which is a decline of more than 60%. Similar trends have

been observed in Servech, Sporovsky and Dikoe. Therefore, active conservation management (physical removal of shrubs at a large scale) is required to maintain the health of peatland ecosystems.

With limited funding from the baseline PA program and international projects, the vegetation in some of the wetland PAs was being managed for one or two years, but when funding ceased, the areas rapidly became overgrow again. Overgrowth by willow, shrubs and reed resulted in drastic declines in populations of aquatic warbler and other birds covered by the Ramsar conventions. The issue, therefore, is one of finding a long-term sustainable mechanism for PAs to manage the vegetation in wetland PAs on an ongoing basis. When the management plans were designed, little attention was given to finding partnerships with local farmers or businesses to make this happen. There was a lack of analysis of the costs and benefits of harvesting, processing and using wetland biomass as fuel, which is the crux of the issue. In the country, overall, there is lack of expertise in using wetland biomass as an alternative fuel.

1.2.2 Forest management in biodiversity important areas outside of PAs does not fully meet the requirements of these ecosystems conservation

Mature broad-leaf and small-leaf forests, as well as peatland forests, play an important role in maintaining high biological diversity. At the same time, these forest categories are mostly production forests; the logging regimes followed in them mostly take no account of the presence of biodiversity, and hence present a major threat to the habitat of many species. Forest communities with dominance of mature oak, ash and aspen trees are currently shrinking. Of all forests, mature forest stands cover just 12%, and therefore demand attention with respect to forestry regimes, assisted regeneration, and maintenance of biodiversity in them. Although very few of these forests are currently protected, Belarus has a relatively high share of certified forests. Despite the fact that over 85% of production forests of Belarus are certified either under the Forest Stewardship Council (FSC) or the European Certification scheme, biodiversity values are not accounted for properly in the management of forests. There are about 150,000 ha of such forests where forest management plans need to be adjusted to take cognizance of the biodiversity values of these forests. But there is a deficit of technologies for effective (from conservation and financial perspective) use of forest and wetland resources in harmony with biodiversity conservation principles. One of the root-causes of this is that information on the distribution of globally important species in forests is missing. In the process of forest use planning, only National Red Data book species (census as of early 1980s) are taken into account. Changes in the distribution ranges of many bird species are not considered; distribution of numerous rare plants is ignored. In the course of the past 10 years there have been multiple cases when logging took place in what later turned out to be a rare biotope/ habitat of a globally important species (e.g. greater spotted eagle, lesser spotted eagle, black stork, eagle owl, and capercailzie). Lack of data collection, identification techniques, poor knowledge of the value and conservation approaches to protection and wise management of such habitats in the forest sector are key weakness of the status-quo. Mechanisms of official designation of protection status to protected biotopes and habitats of protected species are established in Belarus, but there are also several important weaknesses: lack of systematic collection of information about these valuable habitats, absence of procedure of transfer of these plots for protection and organization of their sustainable use in forestry.

Large areas of drained forest peatlands have lost their productive capacity and can no longer be used gainfully for forestry. A drop in the water table by 0.5-0.7 meters, as a result of drainage, has brought about changes in vegetation structure and the disappearance of valuable vegetation associations, impoverishment of the species composition, loss of organic content, release of carbon through mineralization (5-22 tC/ha/y), and loss of local livelihoods (berries, mushrooms, fish nurseries, hunting). Belarus has a substantial population of the Curlew (NT); this species depends on the presence of open bogs amidst forests. The bogs need to be maintained so that overgrowth is avoided (through regulation of the groundwater table); this practice is currently not in place, and the curlew population is under risk. This is just one example of poor hydrological management in peatland forests. Belarus has 260,000 ha of drained peatland forests. Most of these forests are not effectively used and do not ensure the expected buildup of timber. The hydrology of most of these areas remains disrupted (i.e. groundwater table much

below surface). Inappropriate management (or complete lack of management) of the groundwater table in drained peatland forests results in degradation of habitat, drying out of peat soil, release of carbon dioxide through soil mineralization, and loss of small rivers. Several years ago Belgiproles conducted an inventory of all drainage facilities in peatland forests. However, in that process they only described the condition of the drainage canals and sluices. They took no account of the natural successions on peatland forests, changes in forest productivity and did not assess the impact of forest drainage on the state of species. Without such analysis it is impossible to decide on the most appropriate peatland forest use regimes.

1.2.3 Inadequate state of research and monitoring of globally important biodiversity, and lack of demonstration of the potential of species and habitat management and restoration work on survival of threatened species

For several globally important species there is a gap in the monitoring data (population, distribution, and threats) and poor understanding of their habitat requirements. 13 invertebrates and 5 mollusks with EN and VU status were registered in Belarus, including *Dolomedes plantarius, Dytiscus latissimus, Graphoderus bilineatus, Cerambyx cerdo, Lycaena helle, Lopinga achine, Euphydryas maturna, Phyllodesma ilicifolia, Unio crassus, Pseudanodonta complanata*. But up to now there has been no stocktaking of the species: data on their population sizes, habitat requirements, distribution, threats and conservation measures are not available. Belarus has paid more attention to monitoring of mammals and birds; for other species, monitoring and research has been lacking due to insufficient understanding of their value. There are only a few experts in the country knowledgeable about the species. There is a need to include all globally important species in the GIS-based monitoring network managed by the Academy of Sciences.

The potential for habitat management and restoration techniques to contribute significantly to strengthening populations of threatened species has not been demonstrated. By expert assessment, about 700 ha of areas in Servech, Olmany mire, Turov Lug and Dikoe require urgent habitat management (removal of invasive species, reconstruction of nesting habitats, regulation of disturbance factor such as uncontrolled collection of cranberries by local population). These areas are home to aquatic warbler, greater spotted eagle, and great snipe, and therefore require urgent attention.

Belarus has created, by introducing into the wild, a sizeable population of the European bison. Belarus currently has 1,470 individuals (as of January-February 2016) which all originate from just 12 individuals. The overall population size is considered adequate. However, due to cross-breeding the genetic diversity of the population remains low. Belarus implemented the so-called “metapopulation” model for the conservation of the European bison. The species was reintroduced and distributed as 10 wild micro populations. All of them originated practically from one and the same genetic group, the so called Belovezhskaya Puscha group. The pure size of the total country’s population, however, does not alone ensure long term stability. Low genetic diversity of the bison bred by the Belovezhskaya Puscha nursery turned out to result in weak habitat adaptation capacities of this species. The distribution of the species is patchy – small (micro) populations scattered across the country’s forests. The above mentioned weak adaptability demonstrates threats to several micro populations and puts a question mark on the survival of the whole country’s population. This includes the Nalibokski Puscha micro population (second in importance after the Belovezhskaya Puscha micro population). Belarus had lacked capacity so far for any activities to strengthen the genetic populations, e.g. exchange in genetically strong individuals among Belarus micro populations or exchange with the micro populations from Poland. The GEF project could be an important element in addressing this gap.

Similarly, the stability of the population of the aquatic warbler could also be raised through exchange of individuals from different (neighboring) groups to facilitate a situation where site memory would drive the birds to move from inadequate nesting grounds to more favorable sites, ensuring overall higher breeding success. The total size of the Belarus population of the aquatic warbler is 2,900–5,500 singing

males, distributed at 15 nesting sites, all of which are located 50-260 km from each other, which significantly impedes the movement of the birds from one group to another. The GEF project would be instrumental in creating new micro populations through re-location of fledglings.

1.3 Baseline activities/ programs and scenario without GEF support

The state program "Environmental protection and sustainable use of natural resources" for the period 2015-2019, supervised by the Ministry of Natural Resources and Environmental Protection (total funding USD 12 million) envisages the following: advancement of the legislative basis for PAs; support for integration of the PA network into the All European Network of Protected Areas; finalization of management plans for all internationally important protected areas and investment in conservation activities within them; restoration of disturbed meadow and wetland ecosystems; support to tourism and sustainable use of natural resources at PAs; and support to implementation of international treaties in the area of biodiversity. The baseline program will co-finance activities under Component I.

Decision of the Government of Belarus on 18 March 2016 adopted the State program "The Belarusian Forest", (2016-2020) which included the task of conservation, protection and reproduction of forests based on the principles of sustainable forest management and conservation of forest ecosystems, biological diversity, enhance environmental, water protection, sanitation, recreation and other functions of forests. The total amount of its financing is 1,506 mln US Dollars. This baseline program will support the GEF Project with cofinancing of activities under Component II.

The program Conservation and Management of the European Bison will be implemented within the Action Plan on Conservation and Management of Bison (2015 – 2019), recently adopted by the Council of Ministers. The ultimate objective of this baseline program is to ensure long term survival of the country's population of the European bison through the following measures: inventory and identification of sites suitable for new micro populations; establishment of at least 2 new micro populations; monitoring and research on genetic state of the bison; cross breeding scheme across micro populations; and veterinary control (disease control, immunization). The Ministry of Environment and Natural Resources will manage the program. The budget of the program is limited (1.2 million over 5 years). Yet, this is one of the most important baseline programs of the project, and it will co-finance the GEF project and will be implemented in full coordination with it, especially with respect to mechanisms for habitat protection outside PAs (Component II), and cross-breeding trials (Component III). Besides, the subprogram 3 "Hunting Development" of the mentioned State program "Belarussian Forest" for 2016-2020 envisages financing of improvement of habitat conditions for the European bison in Nalibokskaya Puscha in the amount, equivalent to 43.5 thousand US Dollars.

These initiatives in the baseline scenario are significant insofar as they provide basic support to the PA system and forestry sector. However, they are inadequate to ensure long term ecological and financial sustainability. (A summary of the scenarios with and without the GEF investment is provided in Table 1.)

2. STRATEGY

2.1. Rationale and summary of GEF alternative

The alternative scenario introduces changes to management of forests and wetlands in and outside of key biodiversity areas with the objective of making it financially more sustainable and more efficient with respect to the conservation effect. The focus on both Key Biodiversity Areas (KBAs) and surrounding landscape is justified from the Aichi Target and ecosystem approach perspectives, recognizing that protection of natural capital only within PAs is not going to improve its status. The three components proposed by this project address the corresponding three barriers and the incremental global environmental benefits to be generated by the project are summarized in the table below.

Table 1. Summary of incremental cost reasoning and global environmental benefits

<table>
<tr><th>State of ecosystems under baseline</th><th>Summary of GEF scenario</th><th>Increment</th></tr>
<tr><td colspan="3">Biodiversity</td></tr>
<tr><td>Current funding priorities and funding availability under the PA baseline program is sufficient to cover basic support to existing PAs, but lacks site-based sustainable financial mechanisms to incorporate systematic consideration of global environment benefits, or to support conservation and management of sites with globally important biodiversity.
Management plans of sites with globally important biodiversity are outdated and lack strategies and actions on ensuring financial sustainability.
Forest sector programs advance certification but do not ensure conservation and sustainable management of forests that serve as habitat of globally important species.
European bison populations unstable due to low genetic diversity of micro populations and unresolved issues of the feeding base.
Populations of globally important birds (aquatic warbler, greater spotted eagle) decline due to habitat degradation and lack of restoration and sustainable management, as well as high disturbance factor.
Limited data on status and threats to poorly known globally important species (such as invertebrates, plants, mollusks).</td><td>System for financially viable conservation and management measures for key biodiversity areas in place, with engagement of private sector and local communities.
Degraded wetland and forest habitat of globally important species restored and managed sustainably.
Business plans introduced as a concept and applied to generate additional revenue for sites with globally important species and critical actions launched to ensure non-decline of populations.
Data available on status and threats to all globally important biodiversity in the country; recommendations made and action taken to conserve them in-situ.
Forest sector conserves and wisely manages forest areas with globally important species.</td><td>Financial sustainability of the protected area system improves: annual financing gap for optimal management scenario (operations) is reduced by half over baseline (see BD Tracking Tool for details).
METT scores of 6 PAs with globally important species improve as follows:
<table>
<tr><th>PA</th><th>B/L</th><th>Target</th></tr>
<tr><td>Nalibokski</td><td>50</td><td>85</td></tr>
<tr><td>Zvanets</td><td>49</td><td>87</td></tr>
<tr><td>Sporovsky</td><td>53</td><td>87</td></tr>
<tr><td>Olmany</td><td>43</td><td>79</td></tr>
<tr><td>Servech</td><td>24</td><td>73</td></tr>
<tr><td>Turov</td><td>37</td><td>84</td></tr>
</table>
Stable populations of greater spotted eagle and aquatic warbler (see logframe for B/L and target population numbers at the different project sites).
Habitat degradation and disturbance to European bison, and globally important birds removed (measured by METT).
Data gaps on status, threats and recommended conservation actions are filled and actions are under implementation for previously poorly known species.
Project contributes to PoWPA (expansion of PAs, integration of PAs in wider landscapes, and community engagement schemes) and Aichi targets.</td></tr>
<tr><td colspan="3">Climate Change</td></tr>
<tr><td>In the LULUCF sector, emissions from degraded peatland and peatland forests (soil mineralization caused by lowered ground-water table) will continue at 260,000 ha, producing between 5-15 tCO2-eq/ha/y.
No decisions made and lack of know-how for restoration and sustainable management of degraded peatland forests.
Overgrowth of wetlands with invasive shrubs and reeds leads to destruction of fen biotopes, and there</td><td>Methodologies designed and launched in practice for sustainable harvesting of wetland biomass for subsequent pellet production, ensuring stability of the biotope and replacement of fossil fuels.
Release of carbon prevented and sequestration capacities restored of soil and vegetation at 12,456 ha of degraded peatland soils.
Models for biomass harvesting and arresting peatland forest</td><td>Avoided emissions and increased carbon sequestration functions of peatland and forest ecosystems resulting from:
Output 2.1 Avoided deforestation resulting from HCVF designation at 800 ha. Total area of selected sites is no less than 150,000 ha. Without implementation of conservation measures about 800 ha of area will be cut down in the next 20 years.
Output 2.1 Reduced (dryland) forest degradation at 9,500 ha.</td></tr>
</table>

State of ecosystems under baseline	Summary of GEF scenario	Increment
is no mechanism in place for sustainable biomass harvesting.	degradation embedded in PA and forest sector for replication.	Output 2.2 Restoration of 12,456 ha of forest peatland (avoided peatland degradation). This area includes 5 project sites where the water level restoration will be implemented. Output 3.1 Restoration of 1,025 ha of open peatland (avoided peatland degradation). This area is depleted peatland site Dokudovskoe. Output 1.5: Improved grassland management at Turov Lug – two sites with a total area of 560 ha Output 1.4 Replacement of fossil fuels with peatland biomass and pellet production at 3,800 ha. Based on the available equipment, its productivity and effective working time, it is planned to clear and collect mire biomass annually at 950 ha of fens over 4 years. Total avoided emissions + carbon sequestered = **3,051,377 tCO2-eq/20y** (see EX-ACT tool for detailed calculations) + **148,200 tCO2-eq/20y = 3,199,577 tCO2-eq/20y** (see CCM tracking tool for explanation)
Sustainable Forest Management		
The current forestry baseline program would not ensure coverage of the gap in the data on distribution, status, threats and conservation needs for forest habitat that hosts internationally important species. No experience in designation, protection, management planning and enforcement of biodiversity important forests. Continued degradation of peatland forests at 260,000 ha and lack of experience in their restoration and sustainable management.	Inventory of biodiversity in all forests with important biodiversity, and identification and sustainable management triggered for 150,000 ha of such forests. Volumes, timing and modes of logging adjusted; conservation measures implemented to ensure no-disturbance of the forest species. Training of foresters and communities in forest management planning and enforcement of sustainable forest management practices. Inventories of 260,000 of degraded peatland forests, and decision taken on their conservation and wise use. 12,456 ha of degraded forest peatlands restored.	Biodiversity conservation principles integrated in the forestry sector as follows: 150,000 ha of biodiversity-important forests designated and put under good management ensuring stability of their ecosystem functions, such as genetic reserves, habitat of biodiversity and avoided GHG emissions (figures under CCM row above) . The system of inventory of rare and typical biotopes during forest management planning is established. 12,456 ha of degraded peatland forests restored and decisions on restoration / wise management made for 260,000 of peatland forests throughout the country

State of ecosystems under baseline	Summary of GEF scenario	Increment
Sustainable Land Management		
Under the current forest management program, there will be continued soil and vegetation cover degradation at 260,000 ha of degraded drained forest peatlands and lack of decision on restoration and wise use thereof. Levels of ground water at forest peatlands will remain low producing negative impact on surrounding areas. Lack of know-how and practical experience for soil and vegetation recovery in forest peatlands. Lack of experience in sustainable livestock management and biodiversity-sensitive grasslands	Inventory of all drained peatlands (260,000 ha) in place and a decision making mechanism launched insuring their restoration and sustainable management. At least 12,456 ha of peatland forests are expected to be restored in practice as a result of project scenario. Sustainable livestock management demonstrated at Turov Lug (560 ha).	Ground water table over 12,456 ha of disturbed organic peat soils stabilized. Peat mineralization and soil dry out prevented at 1,025 ha. Positive impact on rivers and meadow ecosystems adjacent to peatland forests resulting from the improved hydrological condition and sustainable grazing activities.

2.2 Project consistency with GEF focal area strategies

Biodiversity focal area: The project is consistent with Program 1(Improving Financial Sustainability and Effective Management of the National Ecological Infrastructure) insofar as Outcome I focuses on improving the financial sustainability and management effectiveness of the subsystem of protected areas that are of particular importance for the conservation of globally threatened species.

Sustainable Land Management: The project is consistent with LD-3 (Reduce pressures on natural resources by managing competing land uses in broader landscapes), and specifically Program 4 (Scaling-up sustainable land management through the Landscape Approach) insofar as Output 2.2 will demonstrate the sustainable management of the ground water table at 12,456 ha of degrading peatland forests to arrest degradation and then scale this up to all 260,000 ha of degrading peatland forest areas through developing a long term plan for wise use of these areas.

Climate Change Mitigation: The project is consistent with CC 2 (Demonstrate systemic impacts of mitigation options), and specifically Program 4 (Promote conservation and enhancement of carbon stocks in forest, and other land use, and support climate smart agriculture) insofar as it realizes the following:

- Output 1.4 Replacement of fossil fuels with peatland biomass and pellet harvested at 3,800 ha.
- Output 1.5: Improved grassland management at Turov Lug (2 sites with a total area of 560 ha)
- Output 2.1 Avoided deforestation resulting from HCVF designation at 800 ha. Total area of selected sites is no less than 150,000 ha. Without implementation of conservation measures about 800 ha of area will be cut down in the next 20 years.
- Output 2.1 Reduced (dryland) forest degradation at 9,500 ha.
- Output 2.2 Hydrological rehabilitation of 12,456 ha of forest peatland. This area includes 5 project sites where the water level restoration will be implemented.
- Output 3.1 Hydrological rehabilitation of 1,025 ha of open depleted peatlands. at Dokudovskoe mire.

Sustainable Forest Management: The project is consistent with SFM 1 (Maintained Forest Resources: Reduce the pressures on high conservation value forests by addressing the drivers of deforestation) insofar as Output 2.1 will redesign forest management plans covering an area of 150,000 ha, following identification of forest biotopes that host IUCN threatened species. It is also consistent with SFM 3

(Restored Forest Ecosystems: Reverse the loss of ecosystem services within degraded forest landscapes) insofar as Output 2.2 focuses on restoration of degrading peatland forests.

2.3 Project consistency with national strategies/ plans or reports/ assessments under relevant conventions

The project directly supports the achievement of *Aichi Target 12*: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained. Through the landscape approach, it also substantially contributes to the following targets:

- Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.
- Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

The project is fully consistent with the *National Strategy and Action Plan on Biodiversity* which is currently being updated in line with Aichi targets. Measures to prevent decline of CR, VU, and NT species (including those directly covered by this project) is going be one of the main directions of the new NBSAP. The NBSAP will also prescribe development and implementation of management plans for PAs, restoration of degraded wetland and forest ecosystems, as well as mechanisms for financial sustainability of PAs, such as through engagement of local communities. The project also supports other objectives of the NBSAP, including those related to monitoring and research on globally important species, and improved information and data management in biodiversity.

The project is in line with the *2009 National Strategy for the Implementation of Ramsar Convention*. The project's focus on wetland ecosystems and biodiversity supports such objectives of this Strategy as wetland habitat restoration, and urgent measures to protect globally important wetland biodiversity.

The project will also help Belarus implement priority actions listed under Belarus' *National Communications to UNFCCC*, which underscores the need to concentrate on land-based sources and design projects to curb emissions and increase carbon sequestration. In this respect the project will design approaches for minimizing emissions from peatland forests (Component II).

2.4 Project objective, outcomes, outputs, and activities

The objective of the project is to introduce a conservation-centered and financially self-sufficient approach to management of forests and wetlands that harbor internationally important biodiversity and are important for climate and land integrity.

Outcome I: Improved institutional, financial and management sustainability of forest and mire protected areas, which are key areas for conservation of globally threatened species

This component is aimed at improvement of nature conservation legislation and introduction of new approaches to Protected Area management that realize financial sustainability of measures for conservation of globally threatened species. Key Biodiversity Protected Areas are: Nalibokski, Sporovsky, Zvanets, Mid-Pripyat (Pogost meadow), Turov Lug, Olmany Mires, and National Park Belovezhskaya Puscha (Dikoe mire). These Protected Areas (area is about 242,153 ha)[2] support the major part of populations of such globally threatened species as European bison, greater spotted eagle, and aquatic warbler. The project's objectives will be achieved through engagement of Ministries, Institutes of the National Academy of Sciences of Belarus, Forestry Enterprises, PA administrations, private business, and local communities. Further details on these pilot sites are in Annex 1. The state program

[2] Nalibokski (86892 ha), Sporovsky (19384), Zvanets (16824), Mid-Pripyat (Pogost meadow) (170), Turov Lug (390), Olmany Mires (94219), and National Park Belovezhskaya Puscha (Dikoe mire) (15206), Servech (9068).

"Environmental protection and sustainable use of natural resources" in the 2016 - 2020 years will constitute the baseline for this project outcome.

The project will update and expand the existing management plans for five protected areas through the introduction of new approaches that increase financial sustainability of measures aimed at conservation of globally threatened biodiversity. It will develop and introduce new methods of sustainable management of floodplain meadows (mowing and grazing of beef cattle), gathering and processing of vegetation mire biomass, sustainable use of cranberries, and development of ecological tourism. These methods and approaches will be tested in practice during project implementation and, on the basis of this experience, changes will be made to the Management Plans, and Business Plans will be developed for further promotion of these methods. Each business plan developed under this outcome will: (i) ensure that women are appropriately represented in all meetings and discussions on planning the income-generating activity; (ii) include a gender analysis of the income generating activity (understand of gender-specific roles and gender-differentiated vulnerabilities/ impacts); and (iii) set a target on the participation of women in implementation of the income-generating activity. On average, it is expected that at least 50% of those involved in and benefitting from these sustainable use activities will be women.

Mire ecosystems in Belarus are the most important biotopes as habitats of rare and threatened animal and plant species. These ecosystems harbor more than 40% of bird species, 35% of insect species, and more than 15% of wild plants listed in the Red Data Book of Belarus. They also support a considerable share of the world population of globally threatened species such as aquatic warbler (about 40%), greater spotted eagle (10%), and great snipe (3%). Mires possess significant biological reserves of cranberry, medicinal plants, and game animal species. The development of ecological tourism in Belarus is largely due to this recreational potential of mires. However, despite their value for biodiversity conservation and ecological safety, Belarus' legislation contains not a single normative legal act that would provide at the legislative level integrated management of multiple social relations in the field of protection and rational (sustainable) use of mires (peatlands).

Output 1.1 Improvement of nature conservation legislation aimed at conservation of globally threatened species and their habitats, as well as of the system of registration of nature protection areas

The project plans to develop the draft of the Law of the Republic of Belarus "On the Protection and Use of Peatlands", which should state the legal framework for the protection and rational (sustainable) use of mires (peatlands), conservation and improvement of their habitat forming, water protection and other functions, satisfaction of economic, aesthetic, and other needs of present and future generations. A coordination group including representatives of various organizations and leading experts in the field of protection and use of peatlands will be established to coordinate elaboration of the draft law.

Besides, proposals will be prepared on improvement of normative legal acts, regulating issues of registration and management of protected areas, data on number and area of protected areas will be updated, corresponding information resources will be optimized (register of protected areas, databases on Red Data Book species, rare and typical biotopes, etc.). Protected areas in Belarus (more than 22% of the Belarus' area) will be classified by IUCN categories. "BelNitsEcology" will implement works on achievement of the Outcome 1.

Activity 1.1.1 Elaborate the concept and draft of the Law of the Republic of Belarus "On the Protection and Use of Peatlands", which should state the legal frameworks for the protection and rational (sustainable) use of mires (peatlands). The concept of the Law of the Republic of Belarus "On the Protection and Use of Peatlands" will be elaborated with engagement of leading specialists in protection and use of peatlands. After its acceptance, the draft Law will be developed and approved according to the established procedure.

Activity 1.1.2 Preparation of proposals on improvement of normative legal acts, regulating issues of registration and management of protected areas.

Draft normative legal acts on protected areas, including enactments regulating forestry activities in rare and typical biotops, will be prepared, agreed with stakeholders and transferred to the Ministry of Nature Resources and Environmental Protection.

Activity 1.1.3 Updating of data on number and area of protected areas, optimization of corresponding informational resources (register of protected areas, databases on Red Data Book species, rare and typical biotopes, etc.).

Inventory of protected areas will be conducted, coordinates of the borders' key points will be defined if necessary, information and corresponding informational resources will be updated. Protected areas in Belarus will be classified by IUCN categories and the information will be updated.

Output 1.2 Improved habitat conditions for the European bison micro population in the Nalibokski Reserve through creation of mosaic meadow grounds among dense forests

The Nalibokski PA is a large forest complex with mires, rivers and floodplain meadows situated on its territory in a mosaic pattern (total area of the PA is 86,892 ha). This output will focus on improving foraging conditions for European bison through creation of a network of meadows (353 ha) in dense forest massif at an area of about 50,000 ha and maintaining open structure of these meadows. (The findings of the feasibility study on conservation of bison – conducted during the PPG – are in Annex 4.)

Long term contracts will be signed between the PA administration, local farmers and tourism organizations on maintenance of restored meadows in an open and highly productive state. To implement the sustainable management of meadows, the project will procure special equipment and transfer it to the PA administration. Also, training of all the project's participants will be conducted in methods of maintenance of the meadows in a highly productive state and tourism development. Effectiveness of measures on improvement of habitat conditions for the European bison will be assessed on the basis of monitoring of the meadows' state, the bison population, and amount of funds received from tourism.

Activity 1.2.1 Restore natural foraging grounds (meadows) of European bison in river floodplains and on abandoned amelioration systems (355 ha) through removal of shrubs, sowing of grass, and optimization of hydrological regime. By creating the network of highly productive foraging grounds in the forest massif, conflicts with farmers caused by animals feeding in neighboring agricultural fields will be avoided. These works will include elaboration of scientific justification, and the development and realization of the engineering project on restoration of natural foraging meadows for European bison. The scientific justification will be elaborated by the Scientific-practical Centre for Bioresources (which has bison experts). The engineering project will be developed and realized by organizations, defined by tender.

Activity 1.2.2 Maintain restored foraging meadows in a highly productive state. It is planned to procure special equipment for maintenance of highly productive state of the meadows and transfer it to the PA administration of Nalibokski. Also, training of personnel will be conducted in continuous maintenance of meadows. To ensure sustainability of the project results, a long-term contract will be signed between the project and the PA administration, under which the project transfers the equipment to the PA, and the PA is obligated to carry out work to maintain meadows in the open state.

Output 1.3 Profitable use of cranberry reserves as an effective way of mire ecosystem conservation.

Activity 1.3.1 Develop local business aimed at collection and processing of cranberries that grow in natural mire ecosystems. The project will support businesses focused on processing and production of various environmentally friendly products from cranberries collected by local people on natural mires.

Development of such business will increase the interest of local people (job creation and additional income from cranberry collection), private business and government (taxes) in conservation of natural mires. A marketing and advertising plan will be elaborated for distribution of products of JSC "Arzhanitsa" from cranberry processing in Belarus and abroad.

Activity 1.3.2 Sustainable use of cranberry reserves in Olmany Mires. The project will reduce the disturbance factor for the largest population of the greater spotted eagle in Europe that resides at the Olmany Mires Reserve. A system for sustainable use of cranberry and other resources will be developed that stipulates collection timing and plots where collection is allowed or forbidden; appropriate information campaigns for local communities will be conducted. Introduction of these rules will lead to reduction of the disturbance factor on one of the world's largest breeding populations of the greater spotted eagle. The management plan for the PA will be modified to reflect the new system for sustainable use of cranberry.

Output 1.4 Financially self-sustaining wetland biomass harvesting and processing program launched at two PAs (Sporovsky and Zvanets) in partnership with private sector

In Sporovsky and Zvanets PAs, the project will launch a sustainable wetland biomass collection and processing scheme that will improve the habitat status of several globally threatened species: Aquatic warbler (40% of the global population), Greater spotted eagle, Curlew and Great snipe. At the PPG stage, a business plan was designed for harvesting, processing and use of wetland biomass, indicating roles and responsibilities of different actors, technological requirements and time table for implementation. The plan also stipulates schemes of collection and processing of biomass; plots for mowing; list of available and needed equipment. The activities described below are based on this study and have been discussed and agreed with all parties involved (findings are in Annex 2).

Activity 1.4.1 Procure necessary equipment for sustainable and profitable mowing of reeds, shrubs and grass in accordance with the feasibility study. Equipment and machinery, procured by the project, will be transferred to the experimental subdivision on management of internationally important reserves, established at Sporovsky Reserve and Zvanets Reserve. Equipment belonging to the Sporovsky Reserve and local businesses will also be used to realize this Output as project co-financing.

Activity 1.4.2 Mow and cut reeds and shrubs in Sporovsky Reserve and Zvanets Reserve on a regular basis. Harvesting of shrubs and reeds is expected to produce about 2,500 tons of dry biomass annually. The project will support harvesting for the first 3 years, after which the income earned from the sale of biomass will be sufficient to harvest and process the biomass. Procurement of missing technology by the project will fully equip the entire process for the collection and processing of mire biomass in the Zvanets and Sporovsky PAs to producing of fuel pellets and reed mats. On the basis of the available equipment, its capacity and effective working time, it is planned to harvest mire biomass at area of about 950 ha (Annex 2). About 25,000 m^3 of chips and 6,800 tons of grass biomass will be received over the entire period of project implementation, which will be used for energetic purposes and agriculture, and about 35,000 reed euro sheaves to be sued for roof material and mats.

Activity 1.4.3 Develop business plans for Sporovsky and Zvanets Reserves centered on profitable use of vegetation mire biomass in accordance with the results of practical works and dissemination of the experience to other protected areas.

Output 1.5 Improved financial sustainability of measures for conservation of floodplain meadows (key habitats of globally threatened species) through introduction of technology of sustainable use of meadows for mowing and grazing and through development of ecological tourism (Annex 3).

Sustainable traditional grazing will be tested on floodplain meadows of the Turov Meadow Reserve and in Pogost Meadow site in the Mid-Pripyat Reserve. Sustainable use of meadows will conserve key

breeding sites for several rare and near-threatened bird species, such as Lapwing, Great snipe, Terek sandpiper, Ringed plover, Black-tailed godwit, and habitats for the largest concentrations of migrating birds in Europe located at Turov Meadow (Lesser white-fronted goose, Pintail, Widgeon, Black-tailed godwit, Ruff).

Activity 1.5.1 Test methods of sustainable use of floodplain meadows (Turov Meadow, Pogost Meadow) for the conservation of unique biodiversity habitats (Annex 3). The project will procure special machinery for clearing meadows of shrubs and mowing of wet meadows. Long-term agreements will be signed between the project and JSC "Turovschina", according to which the project will transfer the equipment to local agricultural organization "JSC Turovschina", which will then implement profitable continuous annual grazing of beef cattle and mowing. Scientific justification of sustainable use of floodplain meadows for livestock farming and biodiversity conservation will be elaborated by the Institute of Livestock Farming; realization of this plan will be implemented by local agricultural organization "JSC Turovschina".

Activity 1.5.2 Based on the project's experience develop technology of ecologically effective and economically profitable use of meadows for raising cattle for beef. On the basis of the project's experience, the technology of sustainable use of floodplain meadows will be developed and transferred to livestock farming system. Workshops are planned on dissemination of the technology of sustainable use of floodplain meadows for grazing of beef cattle and fodder harvesting.

Output 1.6 Ecological tourism developed at key protected areas, resulting in improved financial sustainability of protected areas and raised awareness about importance of globally biodiversity conservation.

To increase the financial sustainability of targeted Pas, the project plans to improve and create touristic infrastructure, develop touristic routes, prepare promotional products (maps, booklets, etc.), and develop and test mechanisms of sustainable management of nature conservation objects taking into account touristic activities. The following activities are planned on the most important Protected Areas: equipment of information-educational centers (Olmany Mires, Turov Meadow), construction and reconstruction of ecological paths (Olmany Mires, Servech, Zvanets, Sporovsky), building of observation towers (Olmany Mires, Servech, Zvanets, Nalibokski), production and establishment of big boards (Olmany Mires, Servech, Zvanets, Turov Meadow, Nalibokski), publication of informational materials about reserves' biodiversity (posters, booklets, brochures, maps, etc.), creation of infrastructure for observation of European bison in wildlife , including demonstrational cage and observation platform (Nalibokski). Implementation of the tourism development program will reduce negative impact of non-organized tourism on globally threatened biodiversity, and also provide additional funds for measures on conservation of habitats. The organization “BelNitsEcology” will elaborate the strategy for ecological tourism on Protected Areas.

Outcome II: Sustainable management of biodiversity-important forest and wetland ecosystems outside protected areas

This component focuses on identification of biodiversity-important forests outside PAs and ensuring their sustainable management via assigning special protection status to these territories. It is planned to undertake an inventory of biotopes subject to special protection under the Bern Convention and National Legislation (at least 150,000 ha), to prepare their passports, protection obligations and to transfer them to land users for protection and sustainable use. Inventory works will be carried out simultaneously with basic forestry planning on territory of 38 forestry enterprises. Biotopes will be described, status of and threats to biodiversity documented, conservation and management measures defined and they will be officially declared as biotopes of international importance needing special protection. A pilot project will be implemented on integration of the management system for rare and typical biotopes needing special protection into the forest management plans in two forestry enterprises. In the framework of the pilot

project, special measures on sustainable use of biotopes will be included into the forest management plans and implemented: changes in logging plans, timing and types of logging, biotechnical measures, and training of forestry workers in sustainable management methods. Inventory of biotopes will be done using GIS technologies and modern satellite images. Inventory of rare biotopes will facilitate organization of their protection and sustainable use across all forest districts in Belarus, as well as to integrate biotope conservation methods in the forest management plans, and to raise the knowledge of forestry workers in this area.

In addition, the project will undertake inventory and define ways of further use of forest hydro ameliorative systems (about 260,000 ha) built in 1970-1990. The state of drained peatland forests before and after drainage will be compared and recommendations on their further use will be made based on specially designed parameters: reconstruction of drainage infrastructure (where it would be feasible to raise the productivity of forests); rehabilitation of inefficiently drained forest peatlands, or regulation of the water table to prevent fires and such. The ecological rehabilitation and regulation of water tables to prevent fires and restore mire ecosystem will be demonstrated at five inefficiently drained peatlands with a total area of 12,456 ha, which have been selected at the PPG stage. The project's experience will be shared through seminars and used during preparation of the government's new Forest Sector Development Program.

Output 2.1 Forest biotopes, subject to special protection, are identified, approved and sustainably managed at an area of 150,000 ha.

Under the PPG a detailed feasibility study was undertaken based on which a justification and action plan for changing the forest paradigm have been defined (Annex 5). The primary focus will be on two Forestries – Diatlovski and Stolinski. However, recognizing that the experience also needs to be rapidly replicated at other Forestries, 38 additional Forestries will also be included in all training sessions. However, the actual implementation of conservation measures at these 38 will be undertaken by the Forestries using their own budgets; the project will oversee and provide technical support. Besides, the inventory of all high biodiversity value forests will be carried out, and action plan will be elaborated for their transformation to protected biotopes.

Activity 2.1.1 Harmonize forest and nature conservation legislation with respect to designation of protection status for biodiversity-valuable forest plots by ensuring that such plots can be transferred to protected biotopes under the legislation.

Activity 2.1.2 Identify forest biotopes subject to special protection and nature monuments (outside PAs); undertake an inventory and prepare passports for these biotopes (150,000 ha); and transfer these plots to land users for conservation and sustainable use. Inventory of all high biodiversity value forests and development of the action plan for their transformation into protected biotopes. The inventory works and description of biotopes and nature monuments will be implemented by the Scientific-Practical Centre for Bioresources, Institute of Experimental Botany of the National Academy of Sciences of Belarus and the National Belgosless Institute.

Activity 2.1.3 Revise forest management plans so that they take into account sustainable use of the biotopes now subject to protection. The project will make changes to forest management plans on the basis of the investigation of the state of the biotopes; these changes could affect logging plans, construction of temporary trails, timing and kinds of logging, biotechnical measures. Implementation of the requirements for the sustainable use of biotopes will be demonstrated at two forestries[3] (Stolinski, Diatlovski). Integration of the system of sustainable management of biotopes subject to special protection into forest management plans of two forestries will be implemented by the Institute of Experimental Botany and special institution BelGosLes, which is responsible for forest management planning in

[3] Forestry enterprises are called "Forestries" in Belarus.

Belarus. Consultative and methodical assistance will be provided and foresters will be trained in other 38 forestries, where forestry management planning will be conducted during the project.

Activity 2.1.4 Train foresters, responsible for development and implementation of forest management plans, in identification and sustainable use of biotopes subject to special protection. The project will ensure that this specialized training opportunity is equally accessible to women forestry professionals; the training announcement and selection process will be targeted and designed accordingly.

Output 2.2 Avoided degradation of inefficiently drained forest peatlands (260,000 ha) as a result of development and implementation of the Scheme of Sustainable Use of Drained Forest Peatlands, defining ways of use of each peatland, and ecological rehabilitation of inefficiently drained peatlands demonstrated at an area of about 12,456 ha.

Under the PPG a detailed feasibility study was undertaken based on which a justification and action plan for preventing degradation of drained forest peatlands have been defined (Annex 6).

Activity 2.2.1 Implement a complex inventory of forest hydro ameliorative systems with evaluation of their economic and ecological value based on specially developed and approved criteria (see Annex 6). Regulations for the organization of sustainable use forest hydro ameliorative systems will be developed as needed. Inventory of drained forest peatlands will be implemented under the coordination of the Scientific-practical Center for Bioresources of the National Academy of Sciences of Belarus.

Activity 2.2.2 Develop and approve proposals for future use of forest hydro ameliorative systems (260,000 ha) based on their complex evaluation (reconstruction, repeated waterlogging). Gain approval of the proposed future use of forest hydro ameliorative systems by the Ministry of Forestry with their subsequent implementation.

Activity 2.2.3 Develop and implement engineering projects on repeated waterlogging of forest hydro ameliorative systems (12,456 ha), further effective use of which in productive industrial forestry is impossible due to different reasons. The participation of women in these engineering projects will be encouraged.

Activity 2.2.4 Disseminate the project's experience in the area of practical use of methods of ecological rehabilitation and reconstruction of forest hydro ameliorative systems.

Outcome III: Increased experience and knowledge of innovative measures for habitat restoration and elimination of the most significant threats to globally threatened species; monitoring of efficiency of the project's measures

This component advances the state of monitoring and research on globally important species, and demonstrates active habitat management and restoration techniques to conserve globally important species whose populations depend on the state of habitats in Belarus. The component will also ensure monitoring of the project’s environmental benefits. Innovative measures will be tested that eliminate the most significant problems and threats to globally threatened species: fragmentation of distribution area, degradation and reduction of key habitats' productivity, reduction of genetic heterogeneity of populations, lack of knowledge about the status of insufficiently studied globally threatened species, lack of experience in accelerated restoration of globally threatened species' habitats. The Action Plan on Conservation and Management of Bison (2015 – 2019) will constitute the baseline for this project outcome. The international LIFE Project "Stepping stones towards ensuring long-term favourable conservation status of Aquatic warbler in Lithuania (2016-2023)" will contribute to this outcome about Euro 670,000 as co-financing for measures related to conservation and management of Aquatic Warbler populations. The project will implement 3 workshops in different parts of the country to present and distribute its experience.

Output 3.1 Restored habitats (about 1,820 ha) of globally threatened species (Aquatic warbler, Greater spotted eagle, Great snipe, Black-tailed godwit) within the most important protected areas (Servech, Dikoe) through control of vegetation succession (control of the spread of shrubs and reeds) and optimization of hydrological regime.

The main goal is to create conditions for restoration of the aquatic warbler population through restoration of a network of key habitats - sedge fen mires. The current range of the aquatic warbler is very fragmented and key areas can occur a long distance from each other. Fen mires Servech and Dikoe are located between the main center of the distribution range in the Pripyat Polesie (mires Zvanets and Sporovsky) and peripheral habitats in Lithuania and Poland. Mires Servech and Dikoe are selected as the project areas to create key habitats for aquatic warbler in the transboundary region of Lithuania, Poland and Belarus. The project will restore open sedge mires and potential ecological productivity of mire ecosystems through shrub removal (birch and willow) and optimization of hydrological regime. The linkage of breeding areas in Belarus with those in the EU is important to minimize population fragmentation, ensuring better genetic diversity and more stable numbers of breeding birds.

At present, progressive degradation of mire ecosystems occurs on mires Servech and Dikoe as a result of disruptions of hydrological regime, overgrowth of open mires with shrubs and reduction of mire ecosystem productivity. Over the last 20 years the population of aquatic warbler in Servech has declined from 120 to 30 singing males over, and in Dikoe from 300-400 to 150-200 singing males.

Activity 3.1.1 Restore key aquatic warbler habitats at Dikoe fen mire (bordering Poland) and Servech fen mire (bordering Lithuania) through a) removal of bushes and reed (cutting with high power mulcher), b) optimization of hydrological regime, c) controlled burning in Servech. This will result in richer biomass growth, significant increase in invertebrates, and aquatic warbler population growth. Restoration of mire ecosystem in Dikoe mire will be implemented under the GEF project, and in Servech mire will be covered by co-financing of the LIFE project.

Activity 3.1.2 Rehabilitate extracted peatland at Dokudovskoe fen mire (bordering Lithuania) by accelerated technology through assisted revegetation (using native sedge species). The project will restore sedge fen mire on extracted peatland by accelerated technology. According to this method, seed material and vegetative parts of typical fen mires plant species will be planted, and after that the water level will be raised to set optimal conditions for sedge grass vegetation development. As a result, typical fen mire vegetation communities will develop in the next 3-6 years. Rewetting process will include: preparation of scientific justification and Environmental Impact Assessment (will be covered by co-financing of the LIFE project), development of the engineering project, its implementation, and monitoring of the rewetting efficiency by the GEF co-financing). Rewetting of the Dokudovskoe peatland will be implemented under the coordination of the Scientific-practical Center for Bioresources of the National Academy of Sciences of Belarus.

Activity 3.1.3 Develop and test method of creation of new aquatic warbler populations through relocation of young birds from Zvanets Reserve to restored habitats in Zuvintas Reserve (Lithuania). This activity aims to reduce the habitat fragmentation of the aquatic warbler through creation of new micro populations by relocation at restored wetland biotopes. Young birds memorize their future nesting sites when they are 30-50 days old. The project will relocate young birds from Zvanets Reserve to mires in Zuvintas Reserve in Lithuania. Both sites are very similar in their vegetation and hydrology conditions. In addition, the competent authorities in Lithuania and Belarus have confirmed their support and will provide the necessary permissions and cooperation to realize translocation. All translocation works will be implemented covered by co-financing of the LIFE project.

Output 3.2 Program on exchange of individuals across micro-populations to improve the genetic status of the Nalibokski micro population of the European bison developed and realized.

A feasibility study on conservation of bison was conducted during the PPG. The findings are in Annex 4. Based on this feasibility studies, the following activities are to be undertaken.

Activity 3.2.1 Implement individual identification of European bison (passportization) on the basis of molecular-genetic research to assess their genetic potential. At least 5 traps to catch live bison will be established; at least 10 samples of biomaterial will be obtained. At least 5 genetic passports, reflecting genetic diversity and potential of the European bison Nalibokski micro population will be prepared through molecular-genetic research of received samples. The results will be the basis for genetic recovery of the Nalibokski micro population of the European bison.

Activity 3.2.2 Conduct genetic recovery of the Nalibokski micro population of the European bison and assess effectiveness of implemented activities. The project will develop mating schemes, realize exchange of genetic material, including introduction of new individuals, and evaluate changes in genetic potential of the micro population.

Output 3.3 Targeted measures to stabilize populations of insufficiently studied globally threatened species.

In Belarus, considerable segments of the populations of insufficiently studied globally threatened species (see table below) are poorly protected due to lack/ absence of knowledge about location of their key habitats inside PAs or outside them. To ensure protection of such populations, the project will undertake the following activities.

Table 2. Globally important species requiring special conservation actions

Status	**Species**
Critically Endangered (CR)	1. European eel *Anguilla Anguilla*
Endangered (EN)	*1. Agabus clypealis* *2.* Thick shelled river mussel *Unio crassus* 3. Waterwheel plant *Aldrovanda vesiculosa*
Vulnerable (VU)	*1.* European bison *Bison bonasus* *2.* Greater spotted eagle *Aquila clanga* *3.* Common pochard *Aythya ferina* *4.* Aquatic warbler *Acrocephalus paludicola* *5.* European crayfish *Astacus astacus* *6.* Great raft spider *Dolomedes plantarius* *7. Dytiscus latissimus* *8. Graphoderus bilineatus* *9.* Depressed river mussel *Pseudanodonta complanata*
Near Threatened (NT)	*1.* Ferruginous duck *Aythya nyroca* *2.* Red kite *Milvus milvus* *3.* Red-footed falcon *Falco vespertinus* *4.* Great snipe *Gallinago media* *5.* Black-tailed godwit *Limosa limosa* *6.* Curlew *Numenius arquata* *7.* Eurasian oystercatcher *Haematopus ostralegus* *8.* Meadow pipit *Anthus pratensis* *9.* Lapwing *Vanellus vanellus* *10.* European pond turtle *Emys orbicularis* 11. Pygmy damselfly *Nehalennia speciosa* *12. Phengaris arion* *13.* Dusky large blue *Phengaris nausithous (Maculinea nausithous)* *14.* Scarce large blue *Phengaris teleius (Maculinea teleius)* *15.* False ringlet *Coenonympha oedippus* *16.* European medicinal leech *Hirudo medicinalis* 17. Fen orchid *Liparis loeselii*

Activity 3.3.1 Undertake an inventory of key habitats of the above globally threatened species.

Activity 3.3.2 Change land use status of such habitats to the protection category. The project will prepare passports of identified habitats for their transfer to land users for protection and sustainable use. Borders of protected areas inhabited by globally threatened species will be updated, and data on protection regimes within PAs will be included into the Land Cadastre (in line with the National legislation). This will result in improved registration system of protection regimes and PAs sustainable use and better protection of globally threatened species.

Activity 3.3.3 Develop and implement priority measures to address targeted threats to the most important populations of globally threatened species. Pilot measures are planned on key habitats to improve habitat conditions for globally threatened species. Measures will include:

- creation of new populations (Thick shelled river mussel *Unio crassus* (EN), Waterwheel plant *Aldrovanda vesiculosa* (EN), European crayfish *Astacus astacus* (VU));
- introduction of globally threatened species to restored peatlands (Great raft spider *Dolomedes plantarius* and other);
- prevention of egg losses of European pond turtle *Emys orbicularis;*
- establishment of artificial nests and shelters for globally threatened species on the project areas (Greater spotted eagle, bats, Garden dormouse, other);
- development of National Action Plans on conservation of globally threatened animal species (at least 5 plans);
- on the basis of improved knowledge about the status of all globally threatened species in Belarus to amend all normative documents (Protection rules of wild animals, included in the Red Data Book of Belarus, and their habitats), regulating protection and use of protected species;
- update of the information in international databases according to the data obtained under cooperation with IUCN.

Output 3.4 Assessing the efficiency of implementation of project measures (monitoring of globally threatened species, soil and ground water table, carbon emissions avoided and carbon sequestered).

Within the project regular studies of the dynamics of state of the biodiversity , water tables, and soil and carbon benefits will be carried out. This is essential to measure the main indicators of project success – breeding population of globally threatened species, and habitat quality before and after implementation of habitat restoration measures within the project sites. For biodiversity conservation benefits, this includes monitoring of the dynamics in the density, number and distribution of the indicator species targeted by the project. This research will help to evaluate conservation actions and to better plan future management activities for each site. Assessing of ecological efficiency of the project actions will be implemented by the Scientific-practical Centre for Bioresources of the National Academy of Sciences, Institute of Experimental Botany, Institute of Livestock Farming and NGO BirdLife Belarus as well as by experts in specific fields.

Activity 3.4.1 Monitor breeding populations of globally threatened species (European bison, Greater spotted eagle, Aquatic warbler - VU) and other rare bird species (Great snipe, Curlew, Black-tailed godwit, Lapwing, Meadow pipit and other - NT) at all the pilot sites of the project. Estimation of aquatic warbler breeding population size on the project areas will be based on the number of singing males. Singing male counts will be carried out annually during the project implementation starting in 2017. Widely used standard field methods for performing the census will be applied (absolute counts with mapping of singing males, route counts). Assessing numbers of other rare bird species (greater spotted eagle, great snipe, black-tailed godwit, Eurasian curlew, Lapwing, Meadow pipit) breeding at the pilot

sites (Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires, Pogost Meadow, Turov Meadow) will also be implemented annually by standard census methods depending on species and biology.

Activity 3.4.2 Monitor vegetation dynamics on the project areas before and after implementation of the project measures on optimization and restoration of ecosystems. Vegetation monitoring will provide information on changes in ratio and distribution of plant communities; vegetation productivity; vegetation structure changes after completion of measures to stabilize the hydrological regime, ecological mire rehabilitation, shrubs and reeds removal. Grass species composition and plant communities' distribution and coverage are good indicators for evaluating habitat suitability for globally threatened species. Vegetation monitoring will be implemented on project areas (Zvanets, Sporovsky, Dikoe, Servech, Pogost meadows, Turov meadows, five sites for ecological rehabilitation) in years 2017, 2019 and 2022. All plant communities will be mapped in each of the sites. Vegetation mapping and community descriptions will be performed applying standard methods.

Activity 3.4.3 Monitor ground water levels. Water levels will be monitored before and after realization of the project measures to assess efficiency of habitat optimization activities (Zvanets, Dikoe, Servech), ecological rehabilitation of degraded peatlands (five drained forest peatlands), and rewetting of extracted peatland (Dokudovskoe). Monitoring will be performed according to a prepared plan that sets water-level measuring points. Automatic water-level measuring equipment will be installed at the most important parts of the sites. Monitoring will start in May 2017 and continue until 2022.

Activity 3.4.4 Assess efficiency of measures on improvement of foraging conditions for European bison. Efficiency of these measures will be evaluated through monitoring of following indicators of the European bison population state: reproduction rate, survival (mortality) rate, dynamics of population size and growth, spatial distribution of bison. Additionally, frequency of bison visits to foraging fields, restored highly productive meadows, agricultural fields and other grounds will be tracked.

Activity 3.4.5 Apply the Monitoring and Evaluation Tracking tool (METT) and UNDP-GEF financial scorecard to monitor management effectiveness and financial sustainability at target PAs.

Activity 3.4.6 Monitor carbon benefits. Monitoring of carbon benefits will help estimate the efficiency of the project activities aimed at conservation of existing carbon stock in soil and biomass, reduction of greenhouse gases (GHG) emission and enhance carbon dioxide absorption by wetlands and forest ecosystems. The duration of carbon benefits accounting is 20 years, with 5 years implementation phase and 15 capitalization phase. Monitoring of carbon benefits will cover four project activities:

Activity	Description of methods for carbon benefits assessment
Activity 1.4.2 Utilization of wetland vegetation	Production and utilization of renewable biofuel (wood chips, fuel pellets, and plant biomass) from wetland vegetation will reduce GHG emission by replacing some amount of fossil fuel (gas or diesel fuel). The amount of replaced fossil fuel is calculated from data on amount of produced biofuel and the heating value ratio. The amount of carbon benefits is equal to avoided GHG emission from burning of fossil fuel.
Activity 2.1.2 Sustainable forest management at an area of 150,000 ha that lies outside PAs	This activity will reduce carbon loss from deforestation by implementation of sustainable management for forest ecosystems and enforcing the protection regimes at areas that need special protection according to the Bern Convention and National legislation. The area of avoided deforestation will be estimated from data observed by forest inventory and area obtained status of special protected area. Assessment of carbon benefits will be done using the Ex-Ante Carbon-balance Tool.
Activity 2.2.3 Rewetting of the forest hydro amelioration systems (12,456 ha)	Realization of activities will conserve peat soil carbon stock, reduce GHG emission from peat mineralization and peatland fires, and enhance carbon dioxide absorption by restored wetland vegetation. The carbon benefits will be estimated separately for each project site as the difference between GHG balance with the implementation of peatland restoration
Activity 3.1.2	

Activity	Description of methods for carbon benefits assessment
Rewetting of 1025 ha of "Dokudovskoe" fen peatland site	(project scenario) and GHG balance without project activities (baseline scenario). The assessment of GHG balance for each scenario includes the following: - GHG balance from peat mineralization - GHG emission from peatlands fires - Carbon dioxide absorption by trees - Initiation of methane peak emission in first years after rewetting (only project scenario) The components of GHG balance will be estimated by using the GEST (Greenhouse Gas Emission Site Type) method using data from monitoring of vegetation, soils and water level.

2.5 Socio-economic benefits including gender dimension

Socio economic benefits: While the primary focus of the project is to generate biodiversity conservation, sustainable land management, sustainable forest management, and climate change mitigation benefits, in pursuing these, it will simultaneously generate socio-economic benefits for local people living near the pilot sites of the project. Component I of the project largely focuses on economically profitable and ecologically sustainable use of natural resources at pilot sites. The enhanced income generation opportunities (cranberry gathering, ecological tourism, hay harvesting, and such) created by the project are designed to maintain wetlands in an optimal ecological state and so that they can continue to be accessible and viable for traditional sustainable natural resource use. Maintaining and supporting these traditional uses will help maintain habitats for globally significant biodiversity, GHG mitigation and sequestration, and arresting peatland degradation. A summary of the types of socio-economic benefits and the estimated number of beneficiaries are below.

Sustainable use activity	**Location**	**Estimated number of beneficiaries**
Sustainable management of meadows through regular mowing	Nalibokski	40
Cranberry harvesting	Olmany mires Vitebsk region (Activity 1.3.1)	400 900
Wetland biomass harvesting	Sporovsky, Zvanets	45
Sustainable livestock grazing (beef cattle)	Turov, Pogost	140
Ecotourism	Olmany Mires, Turov Meadow, Servech, Zvanets, Sporovsky, Nalibokski	300

Gender considerations: Various publicly available indexes portray Belarus as a country with high gender equality. In 2014, Belarus had the 6th highest UNDP Gender Development Index (GDI) value, and ranked 31st in the 2014 Gender Inequality Index (GII). In comparison, GII ranks for the Russian Federation and the United States are 54 and 55 respectively. Thus, the problem of gender inequality is far less severe relative to other countries in the world. However, to the extent that the project generates socio-economic benefits for local people living near the pilot sites of the project, and given that the local population comprises men and women, the gender-differentiated impacts of the project were taken into consideration during the PPG. In addition, during implementation, the gender impact will be monitored, verified and documented.

Component I of the project largely focuses on economically profitable and ecologically sustainable use of natural resources at pilot sites. Of the enhanced income generation opportunities created by the project,

the one related to cranberry gathering will accrue maximum benefits to women because some 80% of the gatherers are women. By maintaining wetlands so that they can continue to be accessible and viable for cranberry gathering, women will directly benefit. The number of women gatherers at pilot sites is expected to increase on average 4 times. Other sustainable use activities such as management of forest meadows and tourism at Nalibokski, profitable use of biomass in Sporovsky and Zvanets; and grazing, mowing and tourism at Turov and Pogost are also expected to have an impact on local women. Therefore, each business plan developed under Outcome will: (i) ensure that women are appropriately represented in all meetings and discussions on planning the income-generating activity; (ii) include a gender analysis of the income generating activity (understand of gender-specific roles and gender-differentiated vulnerabilities/ impacts); and (iii) set a target for the participation of women in implementation of the income-generating activity. On average, it is expected that at least 50% of those involved in and benefitting from these sustainable use activities will be women.

Component II of the project will also have a beneficial impact on women. Under Activity 2.1.4 that aims to train forestry professionals in maintaining and enforcing special protection regimes at biodiversity-important forests outside PAs (150,000 ha), the project will ensure that this specialized training opportunity is equally accessible to women forestry professionals; the training announcement and selection process will be targeted and designed accordingly. Secondly, under Output 2.2, the restoration works (restoration of the hydrological regime) planned at forested peatland sites will be designed to actively encourage the participation of women in this activity.

In terms of overall project implementation, the project will promote participation of women in the decision making process by ensuring women are represented on the Project Board (PB) and any additional working groups that are established under the project. Finally, to promote equal opportunities in employment, UNDP will encourage qualified women applicants for positions under the project as per UNDP rules and regulations.

2.6. Cost-effectiveness

The objective of the project is to introduce a conservation-centered and financially self-sufficient approach to management of forests and wetlands that harbor internationally important biodiversity and are important for climate and land integrity. To realize this objective in the most cost-effective manner, national stakeholders have ensured that each project component is associated with a baseline program thus ensuring that project experiences will be internalized into ongoing government programs and that cofinancing can amplify the impact of GEF resources. In addition, project sites have been selected so that they are the most significant sites in terms of harboring internationally important biodiversity that is threatened (for example one of the sites harbors the largest population of the greater spotted eagle in Europe and another site provides habitat for the largest concentrations of migrating birds in Europe). In the case of the aquatic warbler conservation measures, the project links up with activities in Lithuania and Poland to enhance cost-effectiveness. Fen mires Servech and Dikoe are located between the main center of the distribution range in the Pripyat Polesie (mires Zvanets and Sporovsky) and peripheral habitats in Lithuania and Poland. Thus the selection of mires Servech and Dikoe as pilot sites will create key habitats for aquatic warbler in the transboundary region of Lithuania, Poland and Belarus, greatly increasing the conservation impact of measures and costs undertaken in Belarus. Finally, the project has tapped in to the technical expertise and wherewithal developed in Belarus on the basis of past peatland conservation projects and this will continue during project implementation.

2.7. Innovativeness, sustainability and potential for scaling up

Innovativeness: Traditional PA projects have focused on passive protection namely, the designation of PAs and new legislation. This project takes the strategy of active protection, arguing that passive measures are not enough to reach Aichi Targets. The project introduces innovative sustainable financing mechanisms for habitat management of globally important species, such as PA-private sector partnerships

for wetland biomass management, and community-based management of European bison feeding grounds and ecotourism. The project also promotes innovative habitat and species management activities aimed at strengthening populations of globally important species, such as the creation of new micro populations and exchange of individuals of European bison among micro populations of Belarus and Poland. These innovative approaches, if proven successful, can go a long way in addressing the threat of habitat fragmentation and ensuring long term stability of the populations of globally important species. The activities of the project are expected to produce not only biodiversity benefits but indisputable benefits for soil and ground water stability, forest ecosystems, and climate (through avoiding soil and forest degradation and enhancing their sequestration potential). This is especially true for the activities related to peatland forests under Component II. The multifocal nature of this project, therefore, is believed to be innovative in itself.

Sustainability: The project is designed to ensure that the PA sub system consisting of areas of particular importance for the conservation of globally threatened species is equipped with self-sustaining financing mechanisms. Active habitat management will engage private sector and local communities and will be based on careful economic planning to ensure costs are covered in the long term and benefits are shared between economic actors (private sector and communities) and PAs, and reinvested in conservation activities. This will not only have a positive financial impact on the PA management, but will ensure that the habitat of globally important species is maintained in optimal condition in the long term. The sustainability of activities in the peatland forest sector (decision making mechanism and know how on rehabilitation of degraded peatland forests) will be ensured by incorporation of the project results in the baseline State Forest Sector Development Program, whereupon funding is going to be allocated to the wise use of peatland forests from the State budget. Similarly, the results of the activities in Component III are going to be embedded in the PA Program and the European Bison Conservation baseline program, ensuring that conservation and sustainable management examples piloted by the project continue beyond the project life.

Replication and dissemination. The replication of project results will be enabled through the baseline programs of the Government (PA Program, Forestry Development Program, European bison program), as part of the commitment and cofinancing of government agencies implementing these programs. Successful models of habitat management in wetlands and forests will be embedded in PA management and business plans, and forest management plans not only of the areas targeted by the project, but also for larger areas. The positive replication potential for peatland forest activities is assessed to be over 260,000 ha; in this entire area, the government will gradually, over the course of 20 years, apply either restoration or other sustainable use paths developed by the project. The immediate replication potential for peatland forest restoration alone is assessed to be 10,000 ha. The immediate replication potential for biomass harvesting is expected to encompass more than 20,000 ha. The project will conduct workshops across areas with highest replication potential to demonstrate the experience and help other economic actors and forest users to implement the same practices in their districts. The habitat and species management activities supporting European bison and aquatic warbler have high potential to be replicated in Poland and Lithuania.

2.8. Stakeholder analysis

During the PPG, a stakeholder assessment was conducted and several consultations were held to discuss and gain consensus on various project activities with these stakeholders. The table below lists the main stakeholders of the project and their expected roles and responsibilities in the project.

Table 3. Project stakeholders

Stakeholder	Roles and responsibilities in the project
The Ministry of Natural Resources and	National implementing agency for the project Heads the cross-ministerial Project Board for the project

Stakeholder	Roles and responsibilities in the project
Environmental Protection (MNREP) of Belarus, BelNIC Ecology	Ensures regular monitoring of project progress and, with UNDP, takes measures to address problems in implementation Oversees the implementation of the conservation activities related to conservation and sustainable management of European bison populations Takes the lead on project activities aimed at ensuring the financial sustainability of protected areas
The National Academy of Sciences (Scientific and Practical Center – NPC – on Bioresources; Institute of Botany); Scientific and Practical Centre of Livestock Farming; Forest Institute.	Provides its substantial technical expertise and resources for the scientific assessments needed to implement project activities under all three components Provides in-kind co-financing in the form of laboratory, equipment, and research facilities
The Ministry of Forestry (Belgosles, Forestries)	Takes the lead in the identification and designation of High Conservation Value Forests (HCVF) Takes the lead on conducting the inventory of peatland forests Ensures sustainability and replication of peatland forest restoration and sustainable management activities
PA administrations of PAs targeted by project activities (Nalibokski, Zvanets, Sporovsky, Olmany mires, Mid Pripyat, Turov meadow, Servech, and Belovezhskaya Puscha)	Key partners for implementation of financial mechanisms in Component I Ensure coordination with private sector and local communities Participate in the habitat and species management activities for aquatic warbler, European bison and greater spotted eagle under Component III
Local communities	Actively engaged in the development of income-generation activities at protected areas that are a focus of the project, as well as at the forested peatland pilot sites that are to be restored, withdrawn from logging, and designated for sustainable use
Private sector (OAO «Turovshchina", «Valeotrans», «Arzhanitsa»)	Biomass processing and pellet production industries, as well as tourism operators will be important partners in implementing the financial mechanisms under Component I
NGO "BirdLife Belarus", NGO "Bagna"	Creating a positive public attitude the project. Participation in bird counts in the project areas.

A large number of consultation meetings were held during project preparation. Of these various consultations, two were large workshops organized to discuss the project in general and the Project Document in particular. One was held in Minsk, and the other in Stolin (Brest region).

The workshop in Minsk was held on 12 May 2016 and included 25 participants as follows: 2 representatives from the Ministry of Natural resources and Environmental Protection of the Republic of Belarus; 3 representatives from the Ministry of Forestry of the Republic of Belarus; 7 representatives from state environmental agencies (nature reserves); 5 representatives from UNDP; 6 representatives from the National Academy of Sciences of Belarus; 2 representatives from NGOs.

The workshop in Stolin was held on 7-8 July 2016 and included 32 participants as follows: 3 representatives from the Ministry of Natural resources and Environmental Protection of the Republic of Belarus; 4 representatives from the Ministry of Forestry of the Republic of Belarus; 1 representative from the Ministry of Foreign Affairs of the Republic of Belarus; 1 representative from the Ministry of Emergency Situations of the Republic of Belarus; 1 representative from the State Inspection for Fauna

and Flora Protection under the Aegis of the President of the Republic of Belarus; 1 representative from the State Border Committee of the Republic of Belarus; 2 representatives from Stolin Regional Executive Committee; 1 representative from state environmental agencies (nature reserves); 7 representatives from the National Academy of Sciences of Belarus; 2 representatives from UNDP; and 2 representatives NGOs. The table below lists all consultations held during the PPG.

Table 4. Stakeholder consultations held during the PPG phase

№	**Venue: locality, organization**	**Categories of participants in consultations**	**Subject matter of consultations**	**Number of participants**
1	Hrodna Oblast, Dziatlava, Dziatlava forestry	Director of the forestry, Chief Forest Officer, engineers and technicians, Director of Lipichanskaya Pushcha Zakaznik, project expert	Pilot forest regulation, biodiversity in a sustainable forest management system	7
2	Brest Oblast, Stolin, Stolin Forestry	Director of the forestry, Chief Forest Officer, engineers and technicians, project expert	Pilot forest regulation, biodiversity in a sustainable forest management system	6
3	Brest Oblast, Stolin, Stolin District Executive Committee	Representatives of ministries, forestries, inspectorates of the Ministry of Natural Resources and Environmental Protection, National Academy of Sciences of Belarus, the Border Guard, local authorities, NGOs, Turovshchina JSC, UNDP, directors of zakazniks, project experts, media	A Workshop on all aspects of the project, especially activities at the pilot site Olmany Mires	32
4	Minsk Oblast, Valožyn District, village of Naliboki, Nalibokski Zakaznik	Director of the Nalibokski Zakaznik, representative of the forestry, engineers and technicians, project expert	Improving the potential of the population of European bison in the Nalibokski Zakaznik	6 (4 consultations)
5	Homieĺ Oblast, Žytkavičy District, Turaŭ, Turovshchina JSC	Director of Turovshchina JSC, engineers and technicians, veterinarian, economists, project experts	Organization of the sustainable use of pilot sites Turovski Lug and Pogost to ensure conservation of biodiversity and productive cattle breeding	10 (3 consultations)
6	Brest Oblast, Ivacevičy District, village of Vysokaje, Sporovsky Zakaznik	Director of the Sporovsky Zakaznik, representatives of an inspectorate of the Ministry of Natural Resources and Environmental Protection, non-governmental organizations, engineers and technicians, business community, project experts	Organization of the sustainable use of biomass of the Jaseĺda River floodplain in the Sporovsky Zakaznik	14 (3 consultations)
7	Viciebsk Oblast, Miory District, Dzisna, Dzisna Forestry	Director of the Forestry, Chief Forest Officer, representatives of district inspectorates of the Ministry of Natural Resources and Environmental Protection, land use units of Miory and Šarkaŭščyna	Optimization of the hydrological regime at the Zhada land-reclamation facility	12

№	Venue: locality, organization	Categories of participants in consultations	Subject matter of consultations	Number of participants
		Districts, engineers and technicians, project expert		
8	Minsk Oblast, Puchavičy District, Marjina Horka, Puchavičy Forestry	Director of the Forestry, Chief Forest Officer, representatives of an inspectorate of the Ministry of Natural Resources and Environmental Protection, land use unit of Puchavičy District, engineers and technicians, project expert	Optimization of the hydrological regime at the Porechski Mokh land-reclamation facility	8
9	Hrodna Oblast, Smarhoń District, Smarhoń, Smarhoń Forestry	Director of the Forestry, Chief Forest Officer, representatives of an inspectorate of the Ministry of Natural Resources and Environmental Protection, land use unit of Smarhoń District, engineers and technicians, project expert	Optimization of the hydrological regime at the Ostrovo land-reclamation facility	7
10	Minsk Oblast, Vileika District, Vileika, Vileika Forestry	Director of the Forestry, Chief Forest Officer, representatives of an inspectorate of the Ministry of Natural Resources and Environmental Protection, land use unit of Vileika District, engineers and technicians, project expert	Optimization of the hydrological regime at the Beryozovik land-reclamation facility	8 (2 consultations)
11	Viciebsk Oblast, Haradok District, Haradok, Haradok Forestry	Director of the Forestry, Chief Forest Officer, representatives of an inspectorate of the Ministry of Natural Resources and Environmental Protection, land use unit of Haradok District, engineers and technicians, project expert	Optimization of the hydrological regime at the Gorodok land-reclamation facility	7
12	Hrodna Oblast, Lida District, Lida, Lida Peat Briquette Factory	Director of the Lida Peat Briquette Factory, representatives of an inspectorate of the Ministry of Natural Resources and Environmental Protection, land use unit of Lida District, local authorities, non-governmental organizations, engineers and technicians, project expert	Optimization of the hydrological regime at the Dokudovskoye land-reclamation facility	9
13	Brest Oblast, Kamianec District, village of Kamieniuki, Belovezhskaya Pushcha National Park	Deputy Director of Belovezhskaya Pushcha National Park, Chief Forest Officer, representatives of an inspectorate of the Ministry of Natural Resources and Environmental Protection, non-governmental organizations, engineers and technicians, project experts	Organization of the sustainable use of tree, shrub and grass biomass at the Dikoye pilot site	12
14	Brest Oblast, Drahičyn District, Drahičyn, Drahičyn Forestry	Director of the Zvanets Zakaznik, Chief Forest Officer, representatives of an inspectorate of the Ministry of Natural	Organization of the sustainable use of the biomass from the group	11 (2 consultations)

№	Venue: locality, organization	Categories of participants in consultations	Subject matter of consultations	Number of participants
		Resources and Environmental Protection, National Academy of Sciences of Belarus, non-governmental organizations, engineers and technicians, business community, project experts	of overgrowing mires in the Zvanets Zakaznik	
15	Minsk, Ministry of Forestry	First Deputy Minister, Heads of Directorates, financial division staff, representatives of the Belgosles Republican Unitary Enterprise, project expert	Questions of co-financing	7
16	Minsk, Minsk Hotel	Representatives of ministries, forestries, inspectorates of the Ministry of Natural Resources and Environmental Protection, National Academy of Sciences of Belarus, the Border Guard, non-governmental organizations, Turovshchina JSC, UNDP, directors of zakazniks, project experts, media	All aspects of the project	25
17	Viciebsk Oblast, Hlybokaje District, Hlybokaje, Hlybokaje Forestry	Director of the Forestry, Chief Forest Officer, representatives of an inspectorate of the Ministry of Natural Resources and Environmental Protection, Department for Emergency Situations of Hlybokaje District, engineers and technicians, project expert	Optimization of the habitats of globally endangered species in the Servech Zakaznik (burning out of unwanted vegetation)	7
18	Minsk, Ministry of Natural Resources and Environmental Protection	Deputy Minister, Head of Directorate, specialists, representative of UNDP, project experts	All aspects of the project, including the questions of co-financing	14 (multiple times)

2.9. Coordination with other initiatives

UNDP is currently implementing a GEF project on sustainable management of all types of peatlands. The primary focus of the project is the development of a National Strategy and Action Plan for Conservation and Sustainable Use of Peatlands, on restoration and sustainable management of peatlands in agriculture, as well as on expansion of IUCN Category IV protected areas on peatlands. The project builds the important policy and regulatory basis for peatlands. It also promotes legal protection, through extension of the PA network on peatlands. The UNDP-GEF initiative described in this document, on the other hand, focuses on forest and wetland biodiversity of global importance and on active management of protected areas that will ensure long term financial sustainability of the key biodiversity areas. The two approaches – formal protection under the ongoing UNDP-GEF project, and implementation of active management and financially sustainable mechanisms under the project proposed herein – are highly complementary and are both critical to ensuring long-term survival of important biodiversity, stability of soil and ground water resources, and avoiding emissions from land-based sources. UNDP will coordinate the activities of both projects through exchange at the expert level and through joint Project Board meetings.

Consultations have also taken place with the World Bank that is developing a Forest Sector Loan and a GEF-6 project in parallel to this UNDP-GEF initiative. The biodiversity/ ecosystem management required under BD Program 9 (mainstreaming) is only a small fraction of the World Bank project and has peripheral value, with the primary focus being on forestry in the climate change context. In contrast, this UNDP-GEF initiative focuses solely on management of ecosystems that harbor globally important biodiversity (this falls under the GEF BD program 1 on protected area sustainability). The two initiatives strengthen the forestry sector in two parallel and non-overlapping areas. MNREP, as the key partner of both initiatives, has coordinated the preparation of the two initiatives to ensure complementarity and avoid overlap. The World Bank project, focuses on forest structure improvement, forest fire management, forest management information systems, improving effectiveness of silvicultural practices, and managing and embedding conservation values into forest management in the face of climate change (such as management of invasive species). None of these issues are covered by the UNDP GEF project, which focuses instead on financial sustainability of KBAs in forest and wetland ecosystems (Component I), on identification, mapping and sustainable management of globally important conservation forests based on the criterion of providing habitat for globally important species (Component II), on peatland forest inventory, management and restoration (Component II), as well as on habitat and species management activities for globally important species (Component III). Coordination between the two projects will be ensured through oversight from MNREP as well as through regular consultations between the projects Steering Committees during implementation.

The Government of Lithuania is developing a project under the EU Life program aimed at managing the habitat of the aquatic warbler. This UNDP-GEF Belarus project will implement activities that would stabilize or increase the population of this globally important species at key biotopes in Belarus (Sporovsky, Zvanets, and Mid-Pripyat). This will trigger positive trends in the movement of the species towards similar ecosystems in neighboring countries, including in Lithuania. Therefore, the activities in Lithuania aimed at improving nesting conditions there, which would run in parallel to the UNDP-GEF project in Belarus, would double the chances for the stabilization of this species. In the same vein, the project also produces synergy with similar aquatic warbler nesting site management initiatives financed by EU Life in Germany and Poland.

Link with previous projects related to peatlands

Over the last decade or so, there have been a number of internationally funded projects in Belarus that have focused on the conservation and sustainable use of peatlands. Each project has built on the lessons learned from the previous one. Even though, broadly, they all address the same issue namely, the conservation and sustainable use of the multiple benefits generated by healthy peatlands, each project varies in scale and approach to the issue and responds to the identified national priorities and desired directions at the time the projects were formulated. For instance, the very first project was an MSP (GEF ID 2057: Renaturalization and Sustainable Management of Peatlands to Combat Land Degradation, Ensure Conservation of Globally Valuable Biodiversity, and Mitigate Climate Change). This was relatively narrow in scope and focused on the re-naturalization of extracted/ mined peatlands with the overall goal being to mitigate climate change, prevent land degradation, ensure biodiversity conservation, and prevent radioactive pollution by rehabilitating degraded peatlands (15 sites). Other projects focused on bringing more wetland areas into the fold of the national protected area system and improving the management effectiveness – one focusing on the Polesie landscape in the southern part of the country (GEF ID 2104: Catalyzing Sustainability of the Wetland Protected Areas System in Belarusian Polesie through Increased Management Efficiency and Realigned Land Use Practices), and another on bringing oligotrophic and mesotrophic peatlands in the Poozerie landscape in the northern part of the country that were least-represented ecosystems into the national PA system (GEF ID 4468: Landscape Approach to Management of Peatlands Aiming at Multiple Ecological Benefits).

These projects have been instrumental in steadily building local and national capacities for conservation of peatlands and enhancing awareness of the key issues among government staff, technical experts, and

policy makers. They have built up a body of knowledge and experience in the country that has enabled national stakeholders to continue to push the boundary when it comes to conserving the multiple global benefits generated by peatlands. Examples of the technical capacity built by these various projects include the national laboratory of peatland carbon of the National Academy of Sciences, policies for and standards on renaturalization of degraded non-forested peatlands, capacities for monitoring GHG emission reductions and biodiversity, partnerships between researchers, peat extraction companies and Government, improved capacities of hydrotechnical companies to maintain hydrological regime on disturbed peatlands, etc.

The experience has also had an impact in other regions of the world inasmuch as specialists and experts who have been involved in the development and implementation of these projects have been called on for support and advice in developing similar projects in other countries (for example, Lithuania, Russia, Ukraine, Thailand).

In the current project, all activities related to conservation and sustainable use of peatlands have been designed taking in to consideration the experiences of the past projects. National experts involved in those projects are also participating in the development and implementation of this one. Some of the key lessons emerging from the past projects were that in order to secure the multiple benefits from peatlands, passive protection is insufficient and there is a need for accompanying active habitat management and conservation. The latter, in turn, requires financing that can be sustained (the main focus of Component I is on securing financial sustainability for active habitat management measures in protected areas, and Component III also promotes active habitat management through targeted measures to remove threats to insufficiently studied globally threatened species). The past projects also highlighted the need to direct conservation efforts to areas that harbor globally significant biodiversity but lie outside formal PAs and Component II of the project is designed to meet this need. Another important lesson emerging from past experience was the need to dedicate resources for regular monitoring of the biodiversity, water tables, and soil and carbon benefits of the project so that measures can be appropriately adapted, and Outcome III (Output 3.4) addresses this.

It is these lessons that have helped national stakeholders home in on the need to specifically focus on forests and wetlands that harbor internationally important biodiversity and are important for climate and land integrity, and to make measures/ actions in these areas effective from a conservation perspective and sustainable from a financial perspective. It departs from previous projects in that the main focus is a subset of areas that harbor globally significant biodiversity that encompass peatland and non-peatland areas, as well as areas within PAs and outside.

3. PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcomes as defined in the 2016-2020 CPD for Belarus: 3.1: Solutions developed at national and subnational levels for the sustainable management of natural resources, ecosystem services, chemicals and waste; and 3.2 Legal and regulatory frameworks, policies and institutions able to ensure the conservation and sustainable use of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation.

UNDP Strategic Plan: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.

Applicable GEF Strategic Objective and Program: BD-1 Program 1; LD-3 Program 4; CCM-2 Program 4; SFM-1; SFM-3

Applicable GEF Outcome Indicators:

BD-1 Program 1: Indicator 1.1: Funding gap for management of PA systems and globally significant protected areas, Indicator 1.2: Protected area management effectiveness score.
SFM-1: Indicator 1: Area of high conservation value forest identified and maintained
SFM-3: Indicator 5: Area of forest resources restored in the landscape, stratified by forest management actors
LD-3 Program 4: Indicator 3.2: Application of integrated natural resource management (INRM) practices in wider landscapes
CCM-2 Program 4 Indicator 4. Deployment of low GHG technologies and practices

<table>
<tr><th>Project Strategy</th><th>Objectively Verifiable Indicators</th><th>Baseline</th><th>Target (by project end)</th><th>Source of verification</th><th>Risks</th></tr>
<tr><td rowspan="4">Project Objective: To introduce a conservation-centered and financially self-sufficient approach to management of forests and wetlands that harbor internationally important biodiversity and are important for climate and land integrity</td><td><u>Biodiversity</u>:
Funding gap for management of targeted globally significant PAs -- Nalibokski, Sporovsky, Zvanets, Mid-Pripyat (Pogost meadow), Turov Lug, and Olmany Mires</td><td>Annual financing gap for optimal management scenario (operations): USD 135,506</td><td>Financing gap reduced by half</td><td>Annual project monitoring reports</td><td rowspan="4">The project is too ambitious for the amount of resources available</td></tr>
<tr><td>Protected area management effectiveness score -- METT applied at Nalibokski, Sporovsky, Zvanets, Mid-Pripyat (Pogost meadow), Turov Lug, Olmany Mires, Dikoe and Servech</td><td><table><tr><th>PA</th><th>B/L METT</th><th>Target METT</th></tr><tr><td>Nalibokski</td><td>50</td><td>85</td></tr><tr><td>Zvanets</td><td>49</td><td>87</td></tr><tr><td>Sporovsky</td><td>53</td><td>87</td></tr><tr><td>Olmany</td><td>43</td><td>79</td></tr><tr><td>Servech</td><td>24</td><td>73</td></tr><tr><td>Turov</td><td>37</td><td>84</td></tr></table></td><td></td><td>Annual project monitoring reports</td></tr>
<tr><td><u>Sustainable Forest Management</u>:
Area of high conservation value forest identified and maintained</td><td>50,000 ha</td><td>200,000 ha</td><td>Annual project monitoring reports</td></tr>
<tr><td><u>Land Degradation</u>:
Application of INRM practices in wider landscapes</td><td>0</td><td>12,456 ha (5 forested peatland pilots)</td><td>Annual project monitoring reports</td></tr>
</table>

<table>
<tr><th>Project Strategy</th><th>Objectively Verifiable Indicators</th><th>Baseline</th><th>Target (by project end)</th><th>Source of verification</th><th>Risks</th></tr>
<tr><td></td><td><u>Climate Change Mitigation</u>:
Area under low GHG management practices with monitoring of low GHG impact undertaken</td><td>0</td><td>415,385 ha[4]</td><td>Annual project monitoring reports</td><td></td></tr>
<tr><td rowspan="7">Outcome I:
Improved financial sustainability and management effectiveness of protected forest and wetland biotopes harboring globally important biodiversity</td><td>Number of business organizations involved in sustainable habitat management at target PAs (Zvanets, Sporovsky, Mid-Pripyat, Turov Meadows) that is profitable for them</td><td>No business organizations involved in management of target PAs</td><td>At least one business organization profitably involved at each target PA</td><td>Reports of business organizations on their activities within PAs</td><td rowspan="7">Use of machinery during restoration and management of habitat might damage flora and fauna of wetlands (soil compaction, ditches formation, etc.)

Demand and price dynamics in wetland biomass (pellets) might influence project activities adversely</td></tr>
<tr><td>Representation of women in sustainable use activities associated with business plans developed under Outcome 1</td><td>0%</td><td>50%</td><td>Reports of business organizations on their activities within PAs</td></tr>
<tr><td>Area of natural, highly productive foraging grounds within the living territory of the European bison's micro population in the Nalibokski Reserve (50,000 ha)</td><td>Not more than 100 ha</td><td>More than 300 ha</td><td>Implementation reports of the engineering project</td></tr>
<tr><td>Spatial distribution of bison throughout the micro population's living area</td><td>During late autumn and early spring bison feed mainly on adjacent agricultural lands</td><td>Bison forage in this area (mosaic meadows) during the most important period of the year (late autumn, early spring)</td><td>Data collected by monitoring studies throughout the year using camera traps, etc.</td></tr>
<tr><td>Area of open sedge mires where sustainable resource use and vegetation management is practiced</td><td>Sporovsky 500 ha
Zvanets 100 ha</td><td>Sporovsky 3,000 ha
Zvanets 4,500 ha</td><td>Reports on monitoring of vegetation</td></tr>
<tr><td>Dynamics of water level throughout the year</td><td>Unstable water level (30-50 cm above or 30 cm below ground level) during May-July
Water mineralization is from 300 to 450 mg/l</td><td>Optimal water level – 5-20 cm above ground level during May-July
Water mineralization is from 150 to 300 mg/l</td><td>Reports on monitoring of water levels at pilot sites</td></tr>
<tr><td>Population size of indicator species in Zvanets and Sporovsky Reserves</td><td colspan="2"><table><tr><th colspan="3">Sporovsky Reserve</th></tr><tr><td>Species</td><td>B/L pop. size</td><td>Target</td></tr><tr><td>Aquatic warbler</td><td>500-700 males</td><td>900</td></tr><tr><td>Greater spotted eagle</td><td>1-2 pairs</td><td>4</td></tr><tr><th colspan="3">Zvanets Reserve</th></tr></table></td><td>Reports on monitoring of bird species' populations</td></tr>
</table>

[4] This includes: 150,000 ha of HCVF, 260,000 ha of forested peatlands, 1,025 ha of open peatland, 560 ha improved grassland management, 3,800 ha where biomass production replaces fossil fuels.

<table>
<tr><th>Project Strategy</th><th>Objectively Verifiable Indicators</th><th>Baseline</th><th>Target (by project end)</th><th>Source of verification</th><th>Risks</th></tr>
<tr><td rowspan="5"></td><td></td><td><table><tr><td>Aquatic warbler</td><td>2,100-4,400 males</td><td>5,000</td></tr><tr><td>Greater spotted eagle</td><td>0-2 pairs</td><td>4</td></tr><tr><td>Curlew</td><td>0-4 pairs</td><td>15</td></tr></table></td><td></td><td></td><td rowspan="5"></td></tr>
<tr><td>Area of open, sustainably used meadows at Turov and Pogost Meadows</td><td>Turov Meadow 100 ha
Pogost 0 ha</td><td>Turov Meadow 380 ha
Pogost 150 ha</td><td>Results of monitoring of biotopes' ratio, vegetation</td></tr>
<tr><td>Population size of species during spring migration (Widgeon, Ruff, Black-tailed godwit)</td><td colspan="2"><table><tr><th colspan="3">Turov Meadow</th></tr><tr><td>Species</td><td>B/L pop. size</td><td>Target</td></tr><tr><td>Widgeon</td><td>10,000-20,000</td><td>50,000</td></tr><tr><td>Ruff</td><td>10,000-30,000</td><td>40,000</td></tr><tr><td>Black-tailed godwit</td><td>3,000</td><td>10,000</td></tr><tr><th colspan="3">Pogost Meadow</th></tr><tr><td>Widgeon</td><td>100</td><td>10,000</td></tr><tr><td>Ruff</td><td>0</td><td>10,000</td></tr><tr><td>Black-tailed godwit</td><td>0</td><td>500</td></tr></table></td><td>Results of monitoring bird populations during migrations</td></tr>
<tr><td>Population size of nesting indicator bird species (Great snipe, Black-tailed godwit, Terek sandpiper, Redshank)</td><td colspan="2"><table><tr><th colspan="3">Turov Meadow</th></tr><tr><td>Species</td><td>B/L pop. size</td><td>Target</td></tr><tr><td>Great snipe</td><td>100 males</td><td>150</td></tr><tr><td>Black-tailed godwit</td><td>30 pairs</td><td>80</td></tr><tr><td>Terek sandpiper</td><td>5 pairs</td><td>20</td></tr><tr><td>Redshank</td><td>120 pairs</td><td>200</td></tr><tr><th colspan="3">Pogost Meadow</th></tr><tr><td>Great snipe</td><td>0 males</td><td>20</td></tr><tr><td>Black-tailed godwit</td><td>0 pairs</td><td>5</td></tr><tr><td>Terek sandpiper</td><td>0 pairs</td><td>2</td></tr><tr><td>Redshank</td><td>2 pairs</td><td>10</td></tr></table></td><td>Results of monitoring bird populations during breeding</td></tr>
<tr><td>Numbers of organized tourists in the PAs</td><td colspan="2"><table><tr><th>PA</th><th>B/L tourist nos.</th><th>Target</th></tr><tr><td>Nalibokski</td><td>250</td><td>2,500</td></tr><tr><td>Sporovsky</td><td>4,500</td><td>5,500</td></tr><tr><td>Turov Meadow</td><td>340</td><td>2,500</td></tr></table></td><td>Reports of PA Management Agencies on the tourism activity</td></tr>
<tr><td rowspan="2">Outcome II: Sustainable forest and wetland ecosystem management in</td><td>Area of forest biotopes transferred to the protection category</td><td>3,000 ha of forest lands with rare biotopes are transferred into protection</td><td>150,000 ha of forest lands with rare biotopes are transferred into protection</td><td>Passports of biotopes' transfer into protection</td><td rowspan="2">Climate change leads to catastrophic impacts on high conservation</td></tr>
<tr><td>Number of Forestries that envisage forestry management plans in line</td><td>3 forestry enterprises</td><td>10 forestry enterprises</td><td>Forestry Management Plans</td></tr>
</table>

<table>
<tr><th>Project Strategy</th><th>Objectively Verifiable Indicators</th><th>Baseline</th><th>Target (by project end)</th><th>Source of verification</th><th>Risks</th></tr>
<tr><td rowspan="3">buffer zones and economic landscapes adjacent to protected areas</td><td>with sustainable use of protected biotopes</td><td></td><td></td><td></td><td rowspan="3">value forests and peatlands</td></tr>
<tr><td>Number of employees of the Ministry of Forestry trained in the sustainable use of protected biotopes</td><td>Employees of the Ministry of Forestry do not have experience in sustainable use of rare biotopes needing special protection</td><td>At least 50 employees of the Ministry of Forestry trained</td><td>Training evaluations, workshop reports</td></tr>
<tr><td>Official policy and document on future use of forest hydro amelioration systems</td><td>Due to the lack of data for evaluation of the current state of forest hydro amelioration systems, there is no coordinated policy on their further use</td><td>Proposals on ways of further use of forest hydro ameliorative systems (260,000 ha) are developed and encapsulated in a Sectoral document of the Ministry of Forestry</td><td>Sectoral document titled "The Scheme of Distribution of Forest Hydro Amelioration Systems according to Their Use"</td></tr>
<tr><td rowspan="4">Outcome III: Increased experience and knowledge of innovative biotechnological measures for eliminating the most significant threats to globally important species, and monitoring of their populations.</td><td>Area of territory with associations of sedge mires</td><td>Dikoe 250 ha
Servech 200 ha</td><td>Dikoe 1,250 ha
Servech 570 ha</td><td>Reports on monitoring of vegetation associations</td><td rowspan="4">Innovative biotechnical measures such as “stepping stones” of threatened species habitats, translocation, and artificial nests cannot be easily applied in Belarus</td></tr>
<tr><td>Population size of globally threatened species: Aquatic warbler, Greater spotted eagle, Curlew, Great snipe.</td><td colspan="2"><table>
<tr><th colspan="3">Dikoe</th></tr>
<tr><td>Species</td><td>B/L pop. size</td><td>Target</td></tr>
<tr><td>Aquatic warbler</td><td>150-200 males</td><td>250</td></tr>
<tr><td>Greater spotted eagle</td><td>4-5 pairs</td><td>4-5[5]</td></tr>
<tr><th colspan="3">Servech</th></tr>
<tr><td>Aquatic warbler</td><td>31-38 males</td><td>90</td></tr>
<tr><td>Curlew</td><td>0-2 pairs</td><td>3-4</td></tr>
<tr><td>Great snipe</td><td>21-30 males</td><td>30-40</td></tr>
</table></td><td>Reports on monitoring of bird populations</td></tr>
<tr><td>Area of restored sedge fen mires</td><td>There is only one sedge fen mire in the Grodno Region - the "Svisloch" mire – with an area of 200 ha</td><td>Sedge fen mire Dokudovskoe with an area of 1,200 ha is restored (located in northwest Belarus); offers potential key habitats for globally threatened aquatic warbler, greater spotted eagle.</td><td>Report on implementation of the construction project on ecological rehabilitation of Dokudovskoe</td></tr>
<tr><td>Area of vegetation associations on restored mire</td><td>Sedge communities on the peatland Dokudovskoe (1,200 ha) occupy no more than 20 ha</td><td>Sedge communities on peatland Dokudovskoe occupy at least 700 ha</td><td>Data on monitoring of vegetation communities</td></tr>
</table>

[5] The objective is to stabilize the condition for this species. Without the project activities, the number of eagles will decline quickly.

Project Strategy	Objectively Verifiable Indicators	Baseline	Target (by project end)	Source of verification	Risks
	Greenhouse gas emissions at following pilot sites: 12,456 ha of forest peatland; 1,025 ha of open peatlands	Carbon dioxide emissions are about 10-20 tons per ha per year	Carbon dioxide emissions are about 0 tons per ha per year	Data on monitoring of greenhouse gas emissions	
	Number of genetically valuable bison transferred from different micro populations in Belarus and Poland to Nalibokski to increase diversity	0	5	Data from genetic research studies	
	Number of genetic passports issued for the Nalibokski micro population of the European bison	0	8	Data from genetic research studies	
	Population dynamics of the Aquatic warbler in the Zuvintas Reserve (Lithuania)	Population size of the aquatic warbler at the restored potential key habitat Zuvintas is 2-7 males	Population size increases to at least 30 males (through translocation) and further population growth is registered	Reports on monitoring of bird species populations	
	Number of breeding pairs of greater spotted eagle in Olmany Mires	18-20 pairs	Stabilized at 20-25 pairs	Reports on monitoring of the population of greater spotted eagle in Olmany Mires	
	Breeding success	30%	40-50		
	Number of secure nesting sites	Lack of secure places for nesting	At least 20 artificial nests are established on plots where greater spotted eagles nest		
	Action plan on conservation of 13 invertebrates and 5 molluscs with EN and VU status based on scientific knowledge of size and distribution (including *Dolomedes plantarius, Dytiscus latissimus, Graphoderus bilineatus, Cerambyx cerdo, Lycaena helle, Lopinga achine, Euphydryas maturna, Phyllodesma ilicifolia, Unio crassus, Pseudanodonta complanata*)	Lack of data prevents actions for their effective protection	Collected data on the state of populations of these species leads to the development of an Action Plan on conservation of these poorly known species	Report on the state and distribution of species and on protection measures	

Note: Further explanation of how the project will mitigate risks is in Annex 7 on Risk Analysis.

4. TOTAL BUDGET AND WORK PLAN

Atlas Proposal (Award) ID:	00090217	**Atlas (Output) Project ID:**	00096096
Atlas Proposal (Award) Title:	Conservation-oriented management of forests and wetlands to achieve multiple benefits		
Atlas Business Unit	BLR10		
Atlas (Primary Output) Project Title	Conservation-oriented management of forests and wetlands to achieve multiple benefits		
UNDP-GEF PIMS No.	5495		
Implementing Partner/Executing Entity	Ministry of Natural Resources & Environmental Protection (MNREP)		

GEF Outcome/ Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budget Account Code	Atlas Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	Note
Component 1: Improved financial sustainability and management effectiveness of protected forest and wetland biotopes harboring globally important biodiversity	MNREP	62000	GEF	71300	Local Consultants	43,700	61,300	28,700	23,700	30,700	188,100	1
				71400	Contractual Services - Individ	26,439	26,436	26,436	19,864	16,864	116,039	2
				72200	Equipment and Furniture	5,000	160,560	830,461	344,296		1,340,317	3
				71600	Travel	2,000	4,500	5,500	3,500	3,000	18,500	4
				72100	Contractual services - companies	80,000	196,000	160,500	118,500	38,500	593,500	5
				74200	Audio Visual&Print Prod Costs		2,000	2,000	3,000	5,000	12,000	6
				75700	Training, Workshops and Confer	5,000	2,000		5,000	7,000	19,000	7
	GEF Subtotal Component 1					**162,139**	**452,796**	**1,053,597**	**517,860**	**101,064**	**2,287,456**	
	MNREP/ UNDP	4000	UNDP-TRAC	72200	Equipment and Furniture	35,000					35,000	8
	UNDP Subtotal Component 1					**35,000**					**35,000**	
	TOTAL COMPONENT 1					**197,139**	**452,796**	**1,053,597**	**517,860**	**101,064**	**2,322,456**	
Component 2: Sustainable forest and wetland ecosystem management in buffer zones and economic landscapes adjacent to PAs	MNREP	62000	GEF	71300	Local Consultants	6,000		12,000	8,000		26,000	9
				71400	Contractual Services - Individ	26,439	26,436	26,436	19,864	16,864	116,039	10
				71600	Travel	1,000	1,500	1,500	1,000	1,000	6,000	11
				72100	Contractual services - companies	69,000	171,000	329,500	247,000		816,500	12
				74200	Audio Visual&Print Prod Costs			1,000	1,000	1,000	3,000	13
				73400	Rental & Maint of Other Equip	2,500	3,000	3,000	3,000	3,000	14,500	14
				75700	Training, Workshops and Confer			15,000	15,000	15,000	45,000	15
	TOTAL COMPONENT 2					**104,939**	**201,936**	**388,436**	**294,864**	**36,864**	**1,027,039**	
Component 3: Increased	MNREP	62000	GEF	71300	Local Consultants		8,000	8,000	6,000	5,000	27,000	16
				71400	Contractual Services - Individ	26,439	26,436	26,436	19,864	16,864	116,039	17

GEF Outcome/ Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budget Account Code	Atlas Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	Note
experience and knowledge of innovative biotechnological measures for eliminating threats				72100	Contractual services - companies	57,000	260,000	135,000	65,000	36,000	553,000	18
				71600	Travel	1,000	1,500	1,000	2,000	1,500	7,000	19
				71200	International Consultant			20,000		20,000	40,000	20
				72400	Communic & Audio Visual Equip	3,000					3,000	21
	TOTAL COMPONENT 3					**87,439**	**295,936**	**190,436**	**92,864**	**79,364**	**746,039**	
Project Management	MNREP/ UNDP	62000	GEF	71400	Contractual Services - Individ	19,700	19,700	19,700	19,700	19,700	98,500	22
				72400	Communic & Audio Visual Equip	4,000	1,000	1,000	1,000	1,000	8,000	23
				71600	Travel	1,000	1,000	2,000	2,000	500	6,500	24
				74500	Miscellaneous Expenses	1,000	1,000	1,000	1,000	1,000	5,000	25
				74598	Direct Project Costs – GOE	10,750	33,500	23,657	11,920	5,200	85,027	26
	TOTAL PROJECT MANAGEMENT (GEF)					**36,450**	**56,200**	**47,357**	**35,620**	**27,400**	**203,027**	
TOTAL PROJECT (GEF)						**390,967**	**1,006,868**	**1,679,826**	**941,208**	**244,692**	**4,263,561**	
Total UNDP						35,000					**35,000**	
PROJECT TOTAL						**425,967**	**1,006,868**	**1,679,826**	**941,208**	**244,692**	**4,298,561**	

Budget notes	Explanation
1	Services of local consultants to elaborate the concept and draft of the Law of the Republic of Belarus "On the Protection and Use of Peatlands" under Output 1.1 (380 working days at $ 100/day); develop recommendations on how to improve fodder conditions for bison (250 working days at $ 100/day); marketing and advertising plan for distribution of products of cranberry processing in Belarus and abroad and system for sustainable use of cranberry and other resources (50 working days at $ 100/day); development of business plans for Sporovsky and Zvanets Reserves centered on profitable use of vegetation mire biomass (130 working days at $ 100/day); developing recommendations for organizing sustainable rehabilitation of the Pripyat flood plain (91 days at $100/ day); public relations/ event management (980 days at $100/day);
2	Pro rata cost (33%) of Project Manager (60 months at $2,500/ month for Project Manager), Scientific Coordinator (60 months at $2,250/ month), driver (60 months at $833/ month) and procurement specialist (36 months at $ 1,750/ month)
3	Procurement of the technology and equipment: tractor, rotary mower machine, mulcher, press-picking machine, trailer for transportation of rolls, tedder, wheel tractor of MF 5440 type, wheel tractor with power of up to 100 kW; prinoth 500 type; telescopic loader, rotary mower, baler, tedder rake, bale loader, buck rake, trolley for transportation of big reed sheavers, mobile bale wrapper, self-loading truck for transportation of bales, trailer container for chips transporting and corresponding equipment, mulcher for shrubs removal, 2 disk mowing machines, press-picking machine; mobile machines and systems for the serving of free-grazing herds, pedigree animals, to improve breeds and productivity of grazed animals; procurement of grass seeds; procurement of veterinarian drugs; and IT equipment, furniture, communication equipment for two information-educational centers. The respective Belarusian state programmes do not envisage procurement of the unique equipment that is required for mowing wetlands. The national cofinancing for equipment will be provided by the National Academy of Science ($236,000 – procurement of new equipment for removing and mulching reeds and bush vegetation on wetlands).

Budget notes	Explanation
4	Travel of local consultants for Outcome 1 and this includes DSA, tickets, vehicle rental, fuel
5	Cost of subcontracts for: development and implementation of an engineering activity for restoration of bison foraging meadows; maintaining restored foraging meadows in a highly productive state; support businesses focused on processing and production of various ecologically friendly products from cranberries collected by local people on natural mires; support businesses focused on processing and production of various ecologically friendly products from cranberries collected by local people on natural mires; test methods of sustainable use of floodplain meadows (Turov Meadow, Pogost Meadow) through the following: (a) scientific justification ; (b) develop technology of ecologically effective and economically profitable use of meadows; (c) monitoring of efficiency of floodplain meadow use; for developing ecological tourism at key protected areas - (a) construction of 4 ecological trail; (b) 4 observation towers; (c) 5 large interpretive/ informational boards; (d) show cages for observation of wild animals (bison and other wild animals). This budget line also includes an allocation of USD 35,000 for travel expenses justified by the substantial amount of travel by staff members and experts of the project to a large number of project sites (7 sites) that are scattered across the country.
6	Costs of printing and publishing information materials for dissemination of the results of Outcome 1
7	Costs of hosting inception workshop and other training sessions and workshops under Outcome 1 (including venue, catering, information materials, etc.)
8	The purchase of a minibus. The need to purchase this vehicle is justified by the substantial amount of travel by staff members and experts of the project to a large number of project sites (7 sites) that are scattered across the country (UNDP funded).
9	Services of local consultants to harmonize forest and nature conservation legislation with respect to designation of protection status for biodiversity-valuable forest plots (260 working days at $ 100/day)
10	Pro rata cost (33%) of Project Manager (60 months at $2,500/ month for Project Manager), Scientific Coordinator (60 months at $2,250/ month), driver (60 months at $833/ month) and procurement specialist (36 months at $ 1,750/ month)
11	Travel of local consultants for Outcome 2 and this includes DSA, tickets, fuel
12	Cost of following subcontracts: Identify forest biotopes subject to special protection and nature monuments (35 forestries); Revise forest management plans so that they take into account sustainable use of the biotopes now subject to protection; Implement a complex inventory of forest hydro ameliorative systems with evaluation of their economic and ecological value; Develop and approve proposals for future use of forest hydro ameliorative systems; Develop and implement engineering projects on repeated waterlogging of forest hydro ameliorative systems (12,456 ha)
13	Costs of printing and publishing information materials for dissemination of the results of the Outcome 2
14	Expenses related to rental and maintenance of equipment required for office functioning (car, computers, etc.)
15	Costs of hosting training workshops and meetings for dissemination of the experience of Outcome 2 (including venue, catering, information materials, etc.)
16	Services of local consultants on monitoring of hydrological regimes (80 days at $100/ day); Monitor carbon benefits (40 days at $100/ day); Apply the METT and UNDP-GEF financial scorecard to monitor management effectiveness and financial sustainability at target PAs (80 days at $100/ day); Assessment of the efficiency of measures on improvement of foraging conditions for bison such as spatial distribution, frequency of visits to feeding fields, agricultural fields, etc. (60 days at $100/ day)
17	Pro rata cost (33%) of Project Manager (60 months at $2,500/ month for Project Manager), Scientific Coordinator (60 months at $2,250/ month), driver (60 months at $833/ month) and procurement specialist (36 months at $ 1,750/ month)
18	Cost of following subcontracts: restoration of key aquatic warbler habitats at Dikoe fen mire (bordering Poland); Implement individual identification of European bison (passportization); Conduct genetic recovery of the Nalibokski micro population of the European bison and monitor implemented activities; Undertake an inventory of key habitats of globally threatened species; Change land use status of such habitats to the protection category; Develop and implement priority measures to address targeted threats to the most important populations of globally threatened species; Monitor breeding population of globally threatened species (aquatic warbler, greater spotted eagle, curlew, great snipe) and other rare bird species at all the pilot sites (Zvanets, Sporovsky, Servech, Dikoe, Olmany Mire, Turov Meadows, Pogost); Monitor vegetation at breeding habitats of globally threatened species and restored peatlands. This also includes subcontract for an annual audit at $2,000 per year.
19	Travel costs of local consultants for Outcome 3 and this includes DSA, tickets, fuel
20	Cost of hiring International M&E Experts for independent mid-term and final evaluation of the project (fees + travel costs)
21	Costs of printing and publishing information materials for dissemination of the results of the Outcome 3

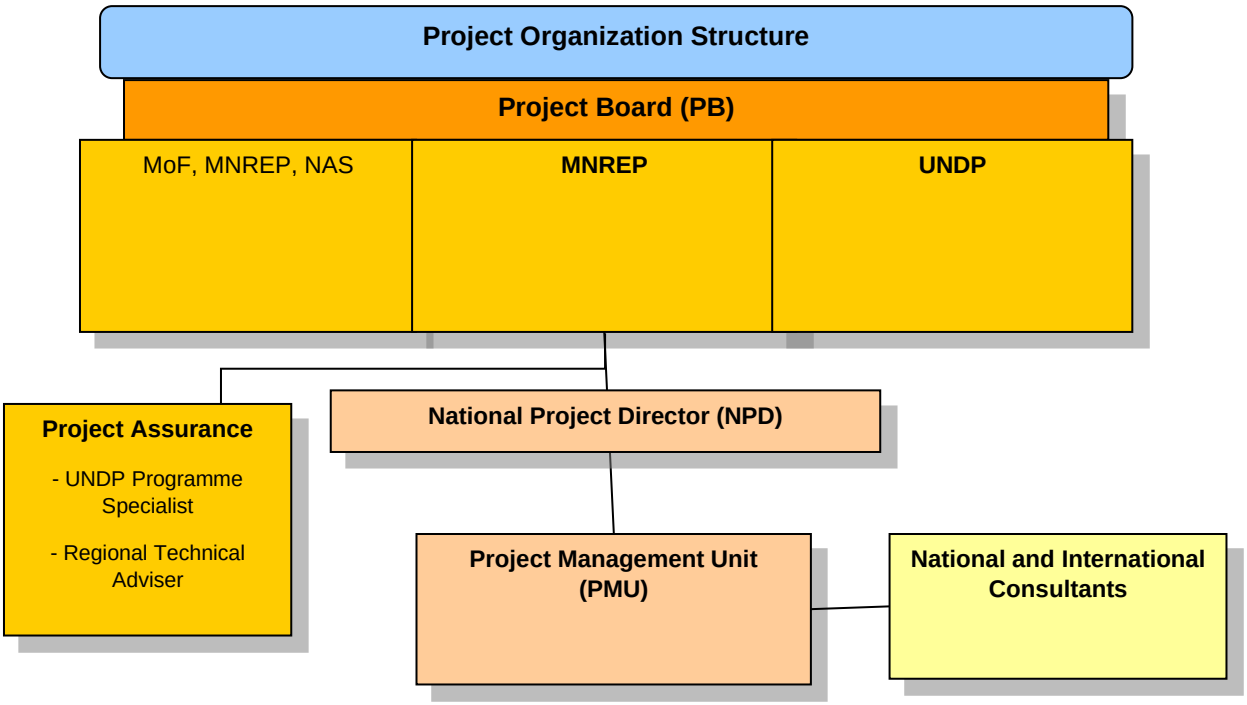
Budget notes	Explanation
22	Services of an Administrative/ Financial Assistant (60 months at $ 1,641/ month)
23	Telephone and other communications services ($1,000 annually); and video/photo equipment, telephone equipment, and other communication equipment for project management unit ($3,000)
24	Management-related travel to project sites undertaken by project management unit staff
25	Stationery for office
26	Direct Project Cost

SUMMARY OF FUNDS:	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
GEF	390,967	1,006,868	1,679,826	941,208	244,692	**4,263,561**
UNDP	100,000	540,000	460,000	400,000		**1,500,000**
Ministry of Environment (MNREP)	400,000	700,000	700,000	700,000	400,000	**2,900,000**
Ministry of Forestry	1,200,000	1,700,000	1,700,000	1,700,000	1,700,000	**8,000,000**
JSC Turovschina	160,000	220,000	240,000	220,000	210,000	**1,050,000**
Republican Landscape Reserve Nalibokski		15,000	15,000			**30,000**
Institute of Experemental Botany of the NAS of Belarus	10,000	15,000	15,000	15,000	5,000	**60,000**
NPC NAS of Belarus on Bioresources	140,000	245,000	150,000	150,000	5,000	**690,000**
TOTAL	**2,400,967**	**4,441,868**	**4,959,826**	**4,126,208**	**2,564,692**	**18,493,561**

5. MANAGEMENT ARRANGEMENTS

The project will be implemented over a period of five years. It will be nationally implemented (NIM) by the Ministry of Natural Resources and Environmental Protection of Belarus (MNREP), in line with the Standard Basic Assistance Agreement (SBAA) between the Government of the Republic of Belarus and UNDP signed on 24 September 1992. The MNREP acting as the Executing Entity for this project will be responsible for overall coordination of Project implementation, efficient use of Project resources and achievement of all the planned Project results. The Executing Entity will closely cooperate with UNDP to ensure successful implementation of all Projects activities and achievement of all the objectives and tasks. The Executing Entity will assign a senior official as the National Project Director (NPD)[6] who will provide general coordination and support to the project on behalf of the MNREP. The Project organization structure, as shown in the figure below, will consist of a Project Board, Project Assurance, and a Project Management Unit (PMU).

Project Organization Structure



A Project Board will be established at the Project inception phase to monitor progress, guide its implementation and support the Project in achieving its listed outputs and outcomes. It will be chaired by the NPD and include representatives from the main stakeholders including the MNREP, Ministry of Economy, Ministry of Forestry, National Academy of Science and UNDP Belarus. Other members can be invited at the decision of the PB on an as-needed basis, but taking due regard that the PB remains sufficiently lean to be operationally effective. The Project Manager (PM) will participate as a

[6] The NPD will not be paid from the project funds; the PD's time is an in-kind contribution from the government to the project.

non-voting member in the PB meetings and will also be responsible for compiling a summary report of the discussions and conclusions of each meeting. The final list of the PB members will be completed at the outset of Project operations and will be approved by UNDP and MNREP. The first PB meeting will take place within 6 months from the Project registration date. The PB will meet at least twice a year to discuss the issues related to Project implementation. The PB could meet more often if it will be deemed necessary.

he UNDP Office in the Republic of Belarus will monitor the implementation and expenditure of the project funds. The UNDP office is also responsible for monitoring the progress of the project, timely reporting on the progress of the project to the UNDP and GEF Regional Office, and organizing the preparation of mandatory and possible additional reviews and assessments, as required. The UNDP office at the request of the implementing organization can also support the procurement of the required services of consultants and other project resources, as well as administer the necessary contracts. In addition, the UNDP Office will provide support for coordination and liaison with relevant organizations and programs in the country. The list of services that the UNDP Country Office in the Republic of Belarus can provide to support the implementation of the project is provided in Annex 11.

The Project Assurance role supports the PB Executive by carrying out objective and independent project oversight and monitoring functions. The Project Assurance role will rest with the respective UNDP Belarus Programme Specialist and UNDPs Regional Technical Advisor in Istanbul.

The day-to-day management of the Project will be carried out by the PMU under the overall guidance of the PB. The PMU will include the PM, a full-time Administrative/ Financial Assistant, a Scientific Coordinator and a Driver. It will also be supported through the part-time services of a procurement specialist and communications specialist. The PMU staff will be selected through an open competitive process in accordance with the respective UNDP rules and procedures taking into account consultations with the MNREP. Effectiveness of the PMU staff's work will be evaluated annually by UNDP Belarus. Based on the evaluation results and consultations with the NPD, a decision will be made on renewal/ non-renewal of the PMU staff contracts. The Project will be supported by short-term international and national experts, particularly a part-time Procurement Specialist. Tentative terms of reference are in Annex 8.

A work plan for the first year of Project implementation will be developed and approved by the MNREP and UNDP during the inception phase. Work plans for the second and subsequent project implementation years will be prepared during the last month of the work year.

To successfully achieve the objective and outcomes of the Project, it is essential that progress of the different Project components be closely monitored both by the key local and international stakeholders using detailed component-specific work plans and implementation arrangements throughout the entire implementation period. This should facilitate early identification of possible risks to successful completion of the Project together with adaptive management and early corrective action, when needed. During implementation, proper care will be taken to ensure communication and co-ordination mechanisms are in place to address areas of common interest in a cost-efficient way.

Both the PMU and the PB will implement mechanisms to ensure ongoing stakeholder participation and effectiveness with the commencement of the Project by conducting regular stakeholder meetings, the dedicated Project website, conducting feedback surveys, implementing strong project management practices. A list of Project stakeholders and their projected roles on the Project are provided on Table 3.

6. MONITORING FRAMEWORK AND EVALUATION

The project will be monitored through the following Monitoring and Evaluation (M&E) activities.

Project start-up

A Project Inception Workshop will be held within the first 4 months of project start with those with assigned roles in the project organization structure, the UNDP Country Office and, where appropriate/ feasible, regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan. The Inception Workshop should address a number of key issues including:

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP Country Office, MNREP and the UNDP-GEF Regional Service Centre (RSC) vis-à-vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again, as needed.
- Based on the Project Results Framework and the relevant GEF Tracking Tools, if appropriate, finalize the first Annual Work Plan. Review and agree on the indicators, targets and their means of verification, and re-check assumptions and risks.
- Provide a detailed overview of reporting, monitoring and evaluation requirements. The Monitoring and Evaluation (M&E) work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule PSC meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first PSC meeting should be held within the first 6 months following the Inception Workshop.

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

Quarterly

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high.
- Based on the information recorded in ATLAS, a Project Progress Report (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually

Annual Project Review/ Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period. The APR/PIR combines both UNDP and GEF reporting requirements. The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual)
- Lesson learned/good practice
- Annual Work Plan and other expenditure reports
- Risk and adaptive management
- ATLAS Quarterly Progress Reports (QPR)
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits

UNDP Country Office and the UNDP-GEF RSC will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project

progress. Other members of the PSC may also join these visits. A Field Visit Report/BTOR will be prepared by the UNDP Country Office and UNDP-GEF RSC and will be circulated no less than one month after the visit to the project team and PSC members.

Mid-term of project cycle

The project will undergo an independent Mid-Term Evaluation (MTE) at the mid-point of project implementation. The MTE will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the MTE will be decided after consultation between the parties to the project document. The Terms of Reference for this MTE will be prepared by the UNDP Country Office, based on guidance from the UNDP-GEF RSC. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Resource Center (ERC). The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project

An independent Final Evaluation will take place three months prior to the final PSC meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the MTE, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/ goals. The Terms of Reference for this evaluation will be prepared by the UNDP Country Office, based on guidance from the UNDP-GEF RSC. The final evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP ERC. The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing

Results from the project will be disseminated within and beyond the project through existing information sharing networks and forums. The project will identify and participate - as relevant and appropriate - in scientific, policy-based and/ or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at http://intra.undp.org/coa/branding.shtml, and specific guidelines on UNDP logo use can be accessed at: http://intra.undp.org/branding/useOfLogo.html. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at http://intra.undp.org/coa/branding.shtml.

Full compliance is required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/

documents/C.40.08_Branding_the_GEF%20final_0.pdf. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Table 5. M&E work plan and budget

Type of M&E activity	Responsible Parties	Budget US$	Time frame
Inception Workshop and Report	PM UNDP Country Office UNDP-GEF RSC	Indicative cost: 5,000	Within first four months of project start up
Measurement of Means of Verification of project results.	PM will, with support from the UNDP-GEF RSC, oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	Indicative cost: 5,000 (To be finalized in Inception Phase and Workshop)	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	PM	Indicative cost: 5,000 (To be determined as part of the Annual Work Plan's preparation)	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	PM UNDP Country Office UNDP RTA UNDP ERC	None	Annually
Periodic status/ progress reports	PM	None	Quarterly
Mid-term Evaluation	PM UNDP Country Office UNDP RSC External Consultants (i.e. evaluation team)	Indicative cost: 20,000	At the mid-point of project implementation.
Final Evaluation	PM UNDP Country Office UNDP RSC External Consultants (i.e. evaluation team)	Indicative cost: 20,000	At least three months before the end of project implementation
Project Terminal Report	PM UNDP Country Office local consultant	None	At least three months before the end of the project
Audit	UNDP Country Office Project manager and team	Indicative cost per year: 2,000 x 5 years (10,000)	Yearly
Visits to field sites	UNDP Country Office UNDP RSC (as appropriate) Government representatives	For GEF-supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project staff time and UNDP staff and travel expenses		US$ 65,000	

Note: Costs included in this table are part and parcel of the UNDP Total Budget and Work Plan (TBWP) in the PRODOC, and not additional to it.

7. LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the SBAA between the Government of the Republic of Belarus and UNDP, signed on 24 September 1992.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the executing agency and its personnel and property, and of UNDP's property in the executing agency's custody, rests with the executing agency.

The executing agency shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
b) assume all risks and liabilities related to the executing agency's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The executing agency agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

The UNDP authorized official can effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF RSC and is assured that the other signatories to the Project Document have no objection to the proposed changes:

a. Revision of, or addition to, any of the annexes to the Project Document;
b. Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
c. Mandatory annual revisions which re-phrase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
d. Inclusion of additional annexes and attachments only as set out here in this Project Document.

8. AUDIT CLAUSE

Project audits will be conducted according to UNDP Financial Regulations and Rules and applicable Audit policies.

9. ANNEXES

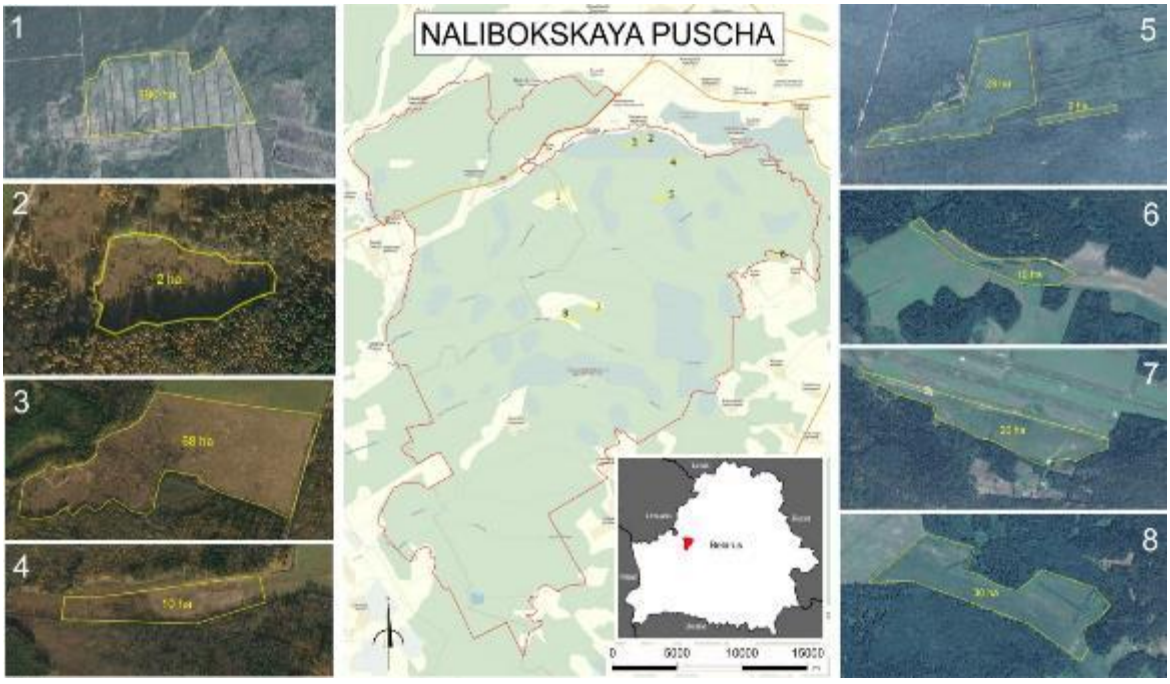
ANNEX 1: DESCRIPTION OF PILOT SITES AT TARGET PROTECTED AREAS

This annex describes in detail the pilot sites of the project that are located in protected areas. These sites are the focus of activities under Outcomes 1 and 3 of the project. The sites are the following:

Pilot Site 1. Nalibokski Reserve

Surface area and geographical location

The Nalibokski Reserve is situated in the Stolbtsy and Volozhin districts of Minsk region and Novogrudok and Ivie districts of Grodno region. The total area of the Reserve is 86,892 ha (see map below – central panel). Within this Reserve, 8 plots has been selected totaling about 300 ha for restoration works (see left and right panels below).



Protection status according to national or regional legislation*:*

The territory is Republican Landscape Reserve (IUCN category IV). It is also designated as an Important Plant Area and Important Bird Area (BY048).

Main land uses and ownership

The whole territory of the Reserve is under state ownership. Land use is conducted by Forestry enterprises (89.2% of the total Reserve's area), agricultural organizations (10%), and village councils (0.7%). Agricultural lands within the Reserve are mainly located in river floodplains and are used for mowing. On the periphery of the Reserve, agricultural lands are used for cultivation of tilled crops. The territory is used for hunting, and collection of mushrooms and berries by the local population.

Description of the project area

The Nalibokski Reserve is one of the largest in Europe and is a large forest complex with mires, rivers and floodplain meadows. It is preserved in a practically natural state and is characterized by very high biological diversity. Due to its features, the Nalibokski Reserve was chosen as a place for creation of the European bison micro population. The territory's landscape is a flat plain, filled with waterlogged floodplains of small rivers. The Reserve's area, occupied by natural and slightly transformed ecosystems, constitutes about 95% of its area. Among them forest ecosystems occupy 77.9%, mire ecosystems – 20.1%, meadows – 0.5%, aquatic ecosystems – 1.1 %, and arable lands – 0.4%.

Importance of the site for conservation of species/ habitat targeted at regional, national and EU levels

Due to its poor economic development and mosaic natural landscapes, the territory of the Reserve is characterized by high biological diversity. 63 animal and 42 plant species from the Red Data Book of Belarus were registered here. The fauna includes globally threatened species: vulnerable (VU) - greater spotted eagle *Aquila clanga,* European bison *Bison bonasus;* and near-threatened (NT) - European roller *Coracias garrulus,* great snipe *Gallinago media,* black-tailed godwit *Limosa limosa,* curlew *Numenius arquata,* European otter *Lutra lutra,* European pond turtle *Emys orbicularis,* large copper *Lycaena dispar.* Seven categories of biotopes of high international and national conservation value (NATURA 2000) are identified in the Reserve:

3260 Water courses of plain to montane levels with the Ranunculion fluitants and Callitricho-Batrachion vegetation: plain water courses with vegetation of Potametea class

6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)

6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels: medows along water courses and on the periphery of forests

6450 Lowland hay meadows (Alopecurus pratensis, Sanguisorba offi cinalis)

9070 Fennoscandian wooded pastures

7140 Transition mires and quaking bogs: open fen mires and transition mires

7160 Fennoscandian mineral-richsprings and springfens: Fennoscandian open fen mires in places of springwater egress

9010 *Western Taiga: Coniferous boreal pine and spruce forests with domination of boreal floristic complex in lower story

91E0* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, *Alnion incanae, Salicion albae*): floodplain forests with *Alnus glutinosa* and *Fraxinus excelsior,* and with biotic complexes of floodplain fen mires

91F0 Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia*, along the great rivers of the Atlantic c and Middle-European provinces (*Ulmenion minoris*): floodplain oak woods

91D0* Bog woodland: pine forests admixed with white birch and spruce on transitional (oligo-mesotrophic) mires with domination of Sphagnum mosses in a live ground cover

9020 Fennoscandian hemiboreal natural old broad-leaved deciduous forests (*Quercus, Tilia, Acer, Fraxinus* or *Ulmus*) rich in epiphytes: south-taiga and subtaiga broad-leaved forests with spruce and hornbeam

9070 Fennoscandian wooded pastures

Description of species and habitats targeted by the project

The project measures will be aimed at maintenance and restoration of open floodplain meadows and fen mires (rare biotope categories 6410, 6430, 6450 NATURA-2000), located among forests in floodplains of small rivers. The priority is to increase the natural foraging base for the European bison's local population, which amounts to about 100 individuals. In addition, restoration of open meadow and mire ecosystems will contribute to maintenance of populations of other globally threatened species, such as greater spotted eagle (0-2 pairs), great snipe (0-5 pairs), black-tailed godwit (2-5 pairs), curlew (2-5 pairs), and European roller (0-1 pair).

Conservation problems and threats

The population of free-living bison in Belarus is about 1,400 animals. The existing situation reduces the threat of extinction of the European bison as a species, but it does not provide long-term preservation. Fertility and reproduction of the population depend to a considerable degree on the provision of bison with complete food. One of the most important problems in conservation of the European bison in Belarus is the lack of natural foraging grounds. This forces bison to feed on agricultural lands, which is the reason of constant conflicts with local farmers and agricultural organizations. Overgrowth of open floodplain meadows and fen mires with trees and shrubs is one of the reasons for the lack of natural foraging grounds, as these ecosystems are the most important element of natural foraging base for bison during early spring and autumn. The reason for overgrowth is natural succession after the cessation of traditional use of these lands for mowing, as well as disabling of melioration systems caused by beaver construction activities. Reduction of area of highly-productive foraging grounds has led to disruption of intra-population and territorial links. Animals move to the periphery of the protected area into agricultural lands, damaging agricultural crops and causing conflicts with local people.

Previous conservation efforts at the site

In 1994 the introduction of the European bison into the Nalibokski Reserve was conducted with the release of 15 animals. The established protection system and provision of food allowed for an increase in the micro population by 6 times. In 2014 the "Action Plan on Conservation and Rational Use of Nalibokski Micro population of the European Bison" was adopted, which states the optimal number of animals in the micro population as 75-80 under the current ecological habitat conditions. The main tasks of the Plan are also prevention of the further expansion of the micro population's living area, resumption of additional forage supply and ensuring concentration of bison in 2-3 places within the Reserve.

Proposed project activities

Under Output 1.2 of the project, the highly-productive open meadow and mire ecosystems that are situated on the territory of the Reserve in a mosaic pattern will be restored in places where the main concentrations of the European bison population lie. This will be achieved by removal of trees and shrubs from overgrown plots, restoration of hydro ameliorative systems with regulated level of surface and ground water, and sowing of natural grasses on meadows without overturning of the soil layer. Contracts

will be signed with organizations that have the necessary equipment and experience in such works. Following restoration, the foraging grounds will be maintained by land users by means of mowing.

The total area of plots, where works on restoration of natural foraging grounds are planned, is about 300 ha. Additionally, several points of autumn-winter feeding will be established. This will lead to improved habitat conditions and to ensure maintenance and autonomous existence of the Nalibokski micro population of the European bison at an area of about 50,000 ha. The implemented measures will improve the foraging base for bison, leading to increase and maintenance of the optimal population at a level of 110-120 animals.

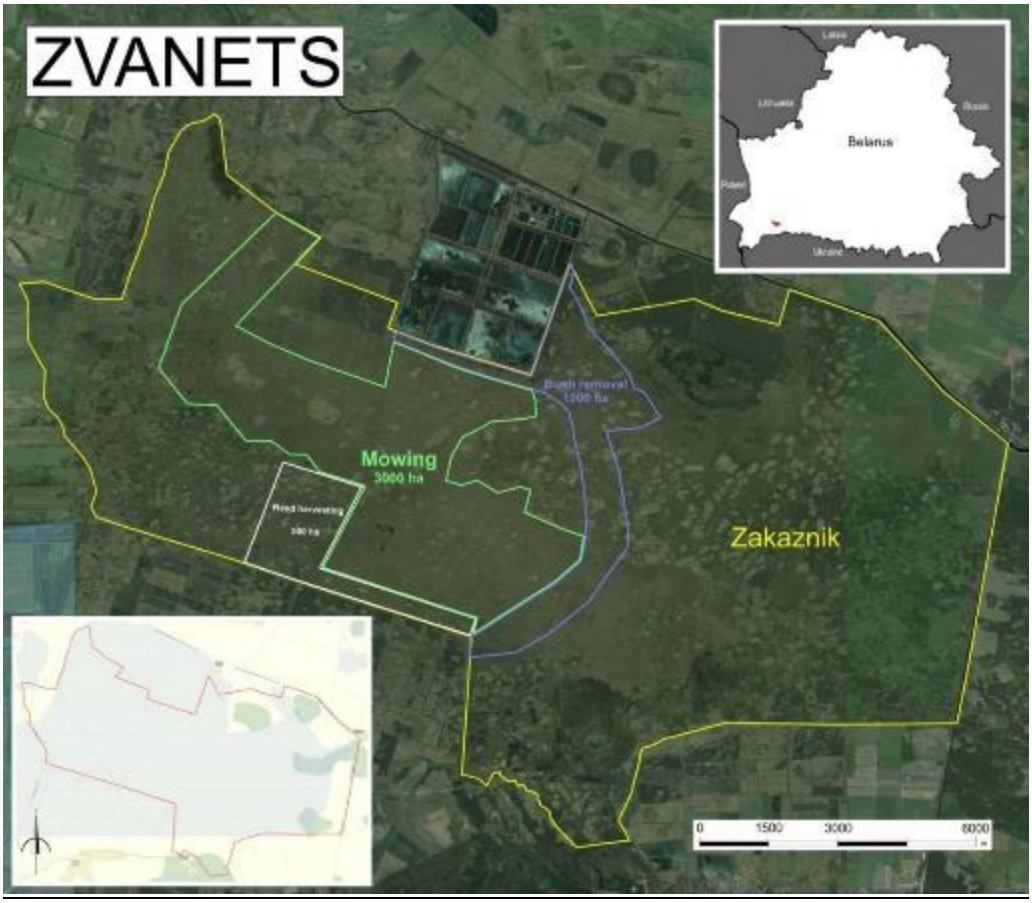
Establishment of additional tourism infrastructure for observation of wild animals (observation decks and towers, ecological routes, etc.) is planned at some plots with the aim to ensure the sustainability of implementation, further monitoring and to improve the financial stability of the agency managing the Nalibokski micro population of the European bison (namely the State Nature Conservation Agency "Republican Landscape Reserve "Nalibokski").

[To return to pilot site table of contents, click here]

Pilot Site 2. Zvanets

Surface area and geographical location

The total surface of the protected area is 16,824.00 ha. The map below depicts its location. Project area is 4,500 ha of the Reserve's territory.



Other protection status according to national or regional legislation

The entire territory of Zvanets mire lies within a national protected area (Reserve, IUCN category IV). It is also considered a Ramsar site

Main land uses and ownership

100% of the area is under nature conservation and is state-owned. 88% is classified as Reserve land (under the Drogichin authority), and 12% is under the ownership of Drogichin Forestry.

Description of the project area

Zvanets is the largest sedge fen mire of mesotrophic type in Europe with numerous open mineral islands. Wide distribution of calcareous soils determines the uniqueness of landscapes, and the flora and fauna of this site. Open fen mires dominate the area. Mineral islands of different sizes (0.2-10 ha) are scattered over the entire mire. Forests and shrubs occupy mainly mineral islands. The hydrological regime of the mire is significantly disrupted because of the considerable negative impact of adjacent drainage systems, situated at the periphery of the mire. The largest population in the world of the globally-threatened aquatic warbler *Acrocephalus paludicola* inhabits the mire (about 27% of the global population). Several other animal and plant species that are considered endangered, rare and protected in Belarus are found on the territory of the site: greater spotted eagle *Aquila clanga* (0-2 pairs), great snipe *Gallinago media* (20-30 males), curlew *Numenius arquata* (0-4 pairs), and *Dytiscus latissimus*.

Importance of the site for conservation of species/ habitat targeted at regional, national and EU levels

Conservation and maintenance of the aquatic warbler populations in a stable state in its main distribution range is not possible without maintenance of a stable, large population in the center of the range. The state of the world population of the aquatic warbler is largely determined by the state of its largest key habitat – Zvanets fen mire, which supports a breeding population with numbers of about 2,100-4,400 singing males.

Description of species and habitats targeted by the project

The Zvanets mire harbors the aquatic warbler a globally threatened bird species (VU vulnerable, IUCN), also listed in Annex I of the European Union's Bird Directive, Annex II of the Bern Convention, Annexes I and II of the Bonn Convention, and the National Red Data Book of Belarus (CR). The breeding population of the aquatic warbler at Zvanets mire currently stands at 2,100-4,400 males. The project site also harbors populations of the greater spotted eagle *Aquila clanga* (VU, 0-2 pairs), great snipe *Gallinago media* (20-30 males, NT), curlew *Numenius arquata* (0-4 pairs, NT).

The site is also characterized by the unique endangered biotope - calcareous mires (code 7230 of the Habitat Directive). The total area of this biotope in Zvanets mire is 12,000 ha. The dominating associations in the vegetation structure of the site are grass and shrub hygromesophilous mire communities and acidophilous mire communities – classes *Phragmitetea*, *Scheuchzerio-Caricetea* and *Alnetea glutinosae*. Grass phytocenoses are dominated by *Caricetum elatae*, and to a lesser extent by *Phragmitetum communis*, *Caricetum appropinquatae* and *Caricetum acutiformis* communities. These species occupy all open areas of the mire.

Of the grass communities, the largest area is occupied by communities dominant in *Carex elata All.* This association is not uniform. There are 8 sub associations in its composition, which differ from each other by the ratio of the dominant-edificator species *Carex elata* and co-dominant species *Phragmites australis (Cav.) Trin. ex Steud., Calamagrostis neglecta (Ehrh.) Gaertn., Mey. et Scherb., Carex lasiocarpa, C. appropinquata, Comarum palustre L., Eriophorum polystachyon L., Menyanthes trifoliata L.* The projective coverage of *C. elata* varies within 50–92%. Mosses are poorly developed (the total projective coverage does not exceed more than 30%) and the number of species is low.

Other wide-spread sedge communities on Zvanets mire, such as *Caricetum appropinquatae, Caricetum acutiformis* and *Caricetum lasiocarpae*, are floristically and edaphically similar to *Caricetum elatae* sub-associations of acidophilous spectrum. *Phragmites australis* is present in the upper layer of almost all formations (its projective coverage is small – about 5-20%). Reeds form dense stands on some mire parts with elevated water levels.

Conservation problems and threats

In recent years the population of aquatic warbler has varied greatly from year to year mainly due to fluctuations in the water level. Over the last 20 years, population of the aquatic warbler has decreased from about 5,000-7,000 to 2,100-4,400 singing males. One of the main reasons is the disruption of the natural hydrological regime. It is completely destabilized because of construction work in the periphery of the mire and because of the drainage network. For the last 10 years, the hydrological regime in Zvanets mire has not met the requirements for the formation of sedge mire communities. It was also not suitable for the aquatic warbler because it was too dry. The spread of reeds has been observed in some years when water levels have increased. At other times, because of severe droughts, there has been a reduction in overall productivity of the mire's ecosystem, leading to dramatic fluctuations in the aquatic warbler population (2,100 to 4,400 individuals). Water quality is another problem. Water with increased mineralization content (400 mg/l) now flows from melioration systems into the central part of the mire without any purification.

The other main threat is overgrowth of parts of the open sedge mire with reeds and shrubs. Over the last 20 years, the area of sedge mire has declined from 8,000 ha to 3,500 ha caused mainly by the encroachment of reed stands, which now occupy about 6,300 ha. Overgrowth of open mires leads to the disappearance of most of the animal and plant species typical for sedge fen mires, including aquatic warbler, great snipe, and curlew. Encroachment of shrubs and reeds into the open fens is caused by cessation of traditional economic use of mires for hay making, as well as changes in the hydrological regime and the quality of water feeding the mire.

Unstable hydrological regime is the main reason for the low numbers of the greater spotted eagle in Zvanets (1-2 pairs). This is associated with the fluctuations of population of the water vole, which is the main food for the greater spotted eagle. The potential population of the greater spotted eagle on the Zvanets mire under stable hydrological regime can reach about 4 pairs.

Previous conservation efforts at the site

The Zvanets mire is a protected area – the National Landscape Reserve Zvanets. To protect the ecosystem of the Zvanets mire, a Management Plan was elaborated and approved in 2002. This Plan was partially implemented during 2002-2007, and was actualized and corrected in 2009. Several construction works were implemented, allowing the optimization of the hydrological regime of the fen mire in order to prevent severe droughts and floods. In 2005, the operating rules for ambient amelioration systems were elaborated. Implementation of these rules lowered the negative impact of the drainage systems on the hydrological regime of the Zvanets Reserve. However, to ensure a stable hydrological regime, it is necessary to repair existing facilities and develop operating rules regulating facilities, taking into account the interests of agriculture and biodiversity. In 2010-2015, within the framework of a UNDP-GEF project (Polesia and Peatlands-2), works on optimization of the hydrological regime of the Zvanets mire were conducted. However, to ensure optimal water levels and water quality in the Reserve independently from exploitation of pump stations and precipitation volume, it is necessary to implement additional activities, which allow active regulation of water levels and water quality on the mire. Other plan actions were also implemented: establishment of an information center, monitoring of the Reserve's ecosystems, etc. However, measures on prevention of overgrowth of the open fen mire are among the most important measures that have yet to be implemented. The Nature Management Plan will be updated in 2016, and will specify measures for optimizing the hydrological regime and methods for dealing with reeds and bushes.

Proposed project activities

Under the project (Outputs 1.3, 3.1, 3.2, 3.4) a stable hydrological regime will be ensured and the area of open sedge fen mire will be increased in one of the most favorable sedge mire ecosystem that is the most important habitat for the aquatic warbler. This will also have a positive effect on other threatened species habitats' such as greater spotted eagle *Aquila clanga* (2 pairs), great snipe *Gallinago media* (20-30 males), curlew *Numenius arquata* (4 pairs), *Dytiscus latissimus*. Previously implemented activities for optimization of the hydrological regime have contributed to ensuring an optimal regime in years with usual precipitation. But very high or low precipitation levels make conditions on the mire unfavorable for the whole mire ecosystem and for most of the globally threatened species. Thus, minor additional works are planned to allow regulation of the quantity of water coming in to the mire in water-rich years as well as during droughts. The project will repair existing, and build new, water regulation structures, which will actively adjust not only the level but also the quality of the water. To improve the quality of the water, water will first be directed to the periphery of the mire, where it will be purified through the reeds. After that it will be redirected back to the center of the mire, which is the most important zone for biodiversity. At the same time, regular mowing of reeds and bushes will be undertaken in the late summer over an area of 4,500 ha.

This combination of optimization of hydrological regime and mowing of reeds will accelerate the reduction of the areas dominated by reed associations to the areas of sedge association communities. As a result of this, it is expected by the end of the project to achieve increase of populations of the most globally threatened species: aquatic warbler - from 2,100-4,400 singing males to 5,000, greater spotted eagle from 0-2 to 4 pairs, great snipe from 20-30 to 50 males, curlew from 0-4 to 15 pairs. Habitat conditions for *Dytiscus latissimus* will be considerably improved as well. Once aquatic warbler population is increased and stable, more than 100 birds will be relocated from Zvanets mire to the Zuvintas mire in Lithuania.

[To return to pilot site table of contents, click here]

Pilot Site 3. Sporovsky Reserve

Surface area and geographical location

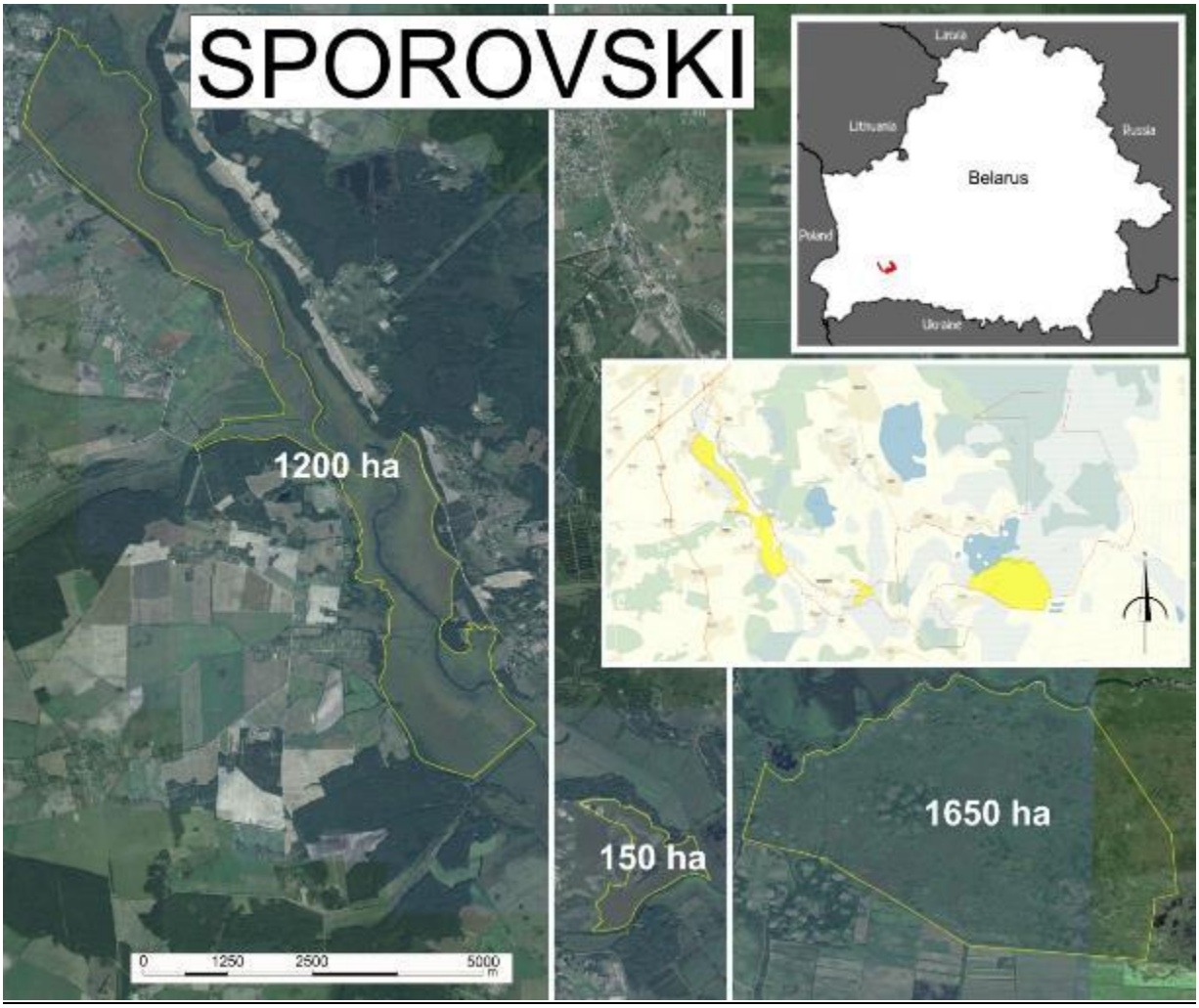
The Sporovski Reserve is situated in the Berioza, Drogichin, Ivanovo and Ivatsevichi districts of Brest region. The total area of the Reserve is 19,384 ha (see map below). Within this Reserve, the project will work in 3 plots totaling 3,000 ha.

Protection status according to national or regional legislation:

The territory is a Republican Biological Reserve (IUCN category IV). It is also designated as a Ramsar site and Important Bird Area (BY022).

Main land uses and ownership

The entire territory is under State ownership. Land use is conducted by agricultural organizations (65.7% of the total Reserve's area), Forestry enterprises (6.7%) and village councils (0.7%). In addition, about 21% of the territory belongs to Regional Executive Committees as reserve lands. 5.9% of the Reserve's territory is occupied by Sporovskoe Lake. Land use is restricted to local mowing and grazing on available lands due to high waterlogging of the area. Hunting, commercial and amateur fishing are practiced here as well.



Description of the project area

Sporovski Reserve contains one of the largest and least transformed floodplain fen mires of mesotrophic type in Europe. It is the typical example of floodplain fen mires, which used to be widespread in the region of Belarussian Polesie, but were drained in 1960s.

The territory of the Reserve is a flat waterlogged alluvial plain with lakes, river valleys, above-floodplain terraces and unique mineral islands. Fen mires of the Sporovski Reserve present a single entity (covering 75% of the total area) stretching along the Yaselda river for about 35 km. Meadow and mire vegetation is represented mainly by communities of eutrophic mires (associations *Phragmitetum communis*, *Caricetum rostratae*, *Caricetum elatae*), waterlogged meadows *(Phalaridetum arundinaceae*, *Glycerietum aquaticae*, *Caricetum gracilis*) and moist meadows *(Molinietum coeruleae*, *Caricetum paniceae*). By area *Carex elata All* are dominating among grass communities of the *Phragmitetea* class.

Mires occupy 59.6% (11,555 ha) of the territory, with 7,918 ha (40.8%) of them being open mires, and 3,637 ha (18.8%) are mires overgrown with shrubs. 24.7% of the area is forested lands (4,068 ha, or 21.0%) and lands overgrown with shrubs (719 ha, or 3.7%); mineral islands among mires occupy 4.9% (959 ha).

Importance of the site for conservation of species/ habitat targeted at regional, national and EU levels

The Sporovski Reserve is an important area for water birds, and primarily for one of the largest populations of aquatic warbler in Europe: population of this species here is from 500 to 700 singing males

in different years. 52 animal and 22 plant species from the Red Data Book of Belarus are registered at the site. Among them are globally threatened species such as: vulnerable (VU) – greater spotted eagle *Aquila clanga,* aquatic warbler *Acrocephalus paludicola, Dytiscus latissimus, Graphoderus bilineatus,* great raft spider *Dolomedes plantarius;* and near-threatened (NT) – red-footed falcon *Falco vespertinus,* great snipe *Gallinago media,* black-tailed godwit *Limosa limosa,* curlew *Numenius arquata,* European otter *Lutra lutra,* pond turtle *Emys orbicularis,* Pygmy damselfly *Nehalennia speciosa,* large copper *Lycaena dispar.*

Description of species and habitats targeted by the project

The project measures will be aimed at maintenance of natural open fen mires, situated in the floodplain of the Yaselda River. This type of mire with typical vegetation communities has practically vanished from Europe, and is important as habitat for globally threatened species. The maximal density of aquatic warbler in Europe is registered in open fen mires of Sporovski Reserve (147 male/100 ha); open mires are foraging grounds for greater spotted eagle (1-2 pairs); great snipe (40-50 pairs), black-tailed godwit (5-10 pairs) and curlew (2-5 pairs) breed here. Besides, open fen mires support one of the largest populations of great raft spider in Europe (VU) and pygmy damselfly (NT).

Conservation problems and threats

The main problem is overgrowth of the open fen mires with trees, shrubs and reeds, which is the direct threat to globally threatened biodiversity. The main reason of the overgrowth is cessation of traditional use of mires for mowing and grazing. As a result, the area of open mires has shrunk by 20% due to shrubs encroachment. One of the methods for conservation of fen mires ecosystems as aquatic warbler and some other globally threatened species' habitats is sustainable use of mire vegetation biomass: reed, trees and shrubs and grass.

Previous conservation efforts at the site

The management plan for the Sporovsky Reserve was developed in 2001 and updated in 2009 and 2015 for conservation of the Reserve's ecosystems. A complex of measures for conservation of fen mires and maintenance of aquatic warbler population was implemented according to the management plan. Works on shrubs cutting and mowing were organized over an area of about 500 ha to preserve fen mires in an open state during the last 10 years under the framework of international projects. The project "Clima-East: Conservation and sustainable management of peatlands in Belarus to minimize carbon emissions and help ecosystems to adapt to climate change, while contributing to the overall mitigation and adaptation effort" envisages measures on clearing of reeds, trees and shrubs over an area of at least 1,000 ha of the Reserve in 2016-2017.

Proposed project activities

Measures implemented by previous projects (EU-UNDP Clima East), however, were aimed mainly at cutting of trees and shrubs on fen mires; special equipment was procured for this purpose. However, there are still some problems with ensuring the financial sustainability of the process of open fen mires maintenance at the expense of production, as a result of processing of mire vegetation biomass (see Annex on Feasibility Study for Fen Mire for explanation). Thus, under Output 1.3, the project will complete the procurement of the equipment for processing wood into fuel chips, procure equipment for grass mowing and its further processing, as well as ensure access to the mire so as to minimize expenses related to harvesting of vegetation biomass.

As a result of these planned measures, trees and shrubs will be removed from at least 1,200 ha; the removed vegetation will be processed into fuel chips. Mowing of grass with its further use for agriculture and energy is planned on at least 1,800 ha. The biomass generated from mowing together with seeds of mire grass will be used for accelerated restoration of fen mire on extracted peatland at another pilot site namely, Dokudovskoe mire. The implemented measures will ensure maintenance of aquatic warbler

habitat at an area of at least 3,000 ha, which allows maintenance of its population in the Reserve at a value of at least 900 singing males at the end of the project.

[To return to pilot site table of contents, click here]

Pilot Site 4. Olmany Mires

Surface area and geographical location

Protected area Olmany Mires is situated in the Stolin district of the Brest Region, its area is 94,219 ha. The map below depicts its location. Project activities at this site focus mainly on conservation of breeding areas of *Aquila clanga* which are spread through the entire PA.

Other protection status according to national or regional legislation

The territory is a Landscape Reserve of Republican Importance (IUCN category IV). The Olmany Mires Reserve is also a Ramsar site (Olmany Mires Zakaznik) and Important Bird Area (BY018).

Main land uses and ownership

The entire territory of the Reserve is under State ownership and is administered by Stolinski and Polesski Forestry Enterprises. The main land use is forestry. In addition, the area is used by local people for collection of berries and mushrooms.

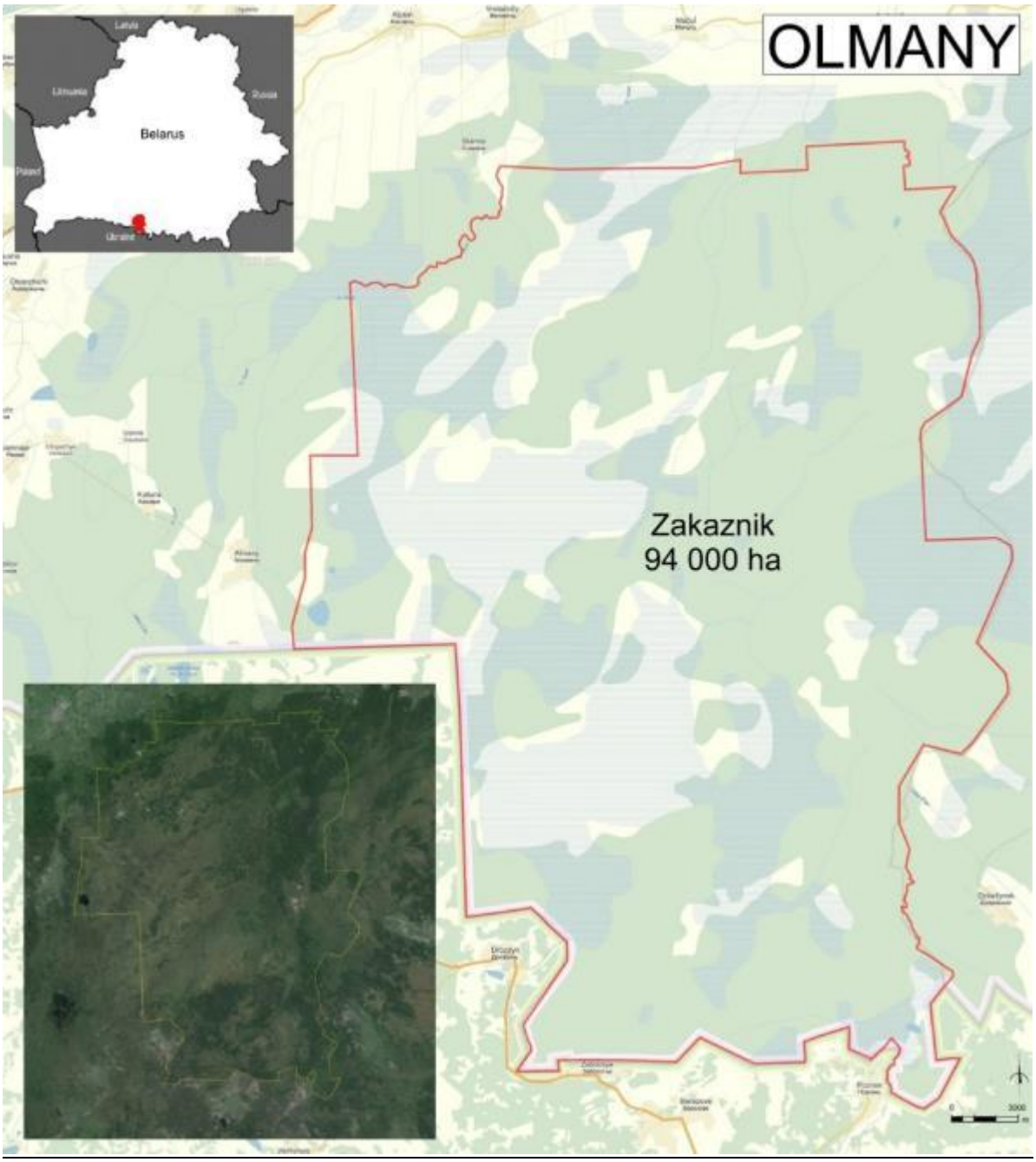
Description of the project area

The site is the largest complex of mires and waterlogged forests in Europe, preserved almost in the natural state. The southwest part of the mire extends into the territory of Ukraine, so the southern border of the site follows the State border. 43.8% of the site is covered by mires, represented by all the main types: fen mires (3,142.3 ha or 3.2% of the Reserve's area), transition mires (37,012.9 ha or 38.1%) and raised bogs (2,356.6 ha or 2.5%). The second important component of the Reserve is forest, occupying 54.3% of its area. More than half of the forest is waterlogged forest. The mire massif is situated between two rivers - Stviga and Lva (right tributaries of the Pripyat River). More than 20 small oxbow lakes are located in their floodplains. Several old drainage canals built in the beginning of the twentieth century are on the territory of the Reserve.

Importance of the site for conservation of species/ habitat targeted at regional, national and EU levels

Olmany Mires Reserve is important for water birds. Due to its natural state and lack of economic development the territory supports 57 animal and 15 plant species listed in the Red Data Book of Belarus. Some of these species are globally threatened: Vulnerable (VU - greater spotted eagle *Aquila clanga,* aquatic warbler *Acrocephalus paludicola)* and Near-threatened (NT - red-footed falcon *Falco vespertinus,* European roller *Coracias garrulus,* great snipe *Gallinago media,* black-tailed Godwit *Limosa limosa,* curlew *Numenius arquata,* otter *Lutra lutra*, European pond turtle *Emys orbicularis,* large copper *Lycaena dispar).*

14 types of ecosystems aligned with 10 NATURA 2000 categories and 14 EUNIS categories are identified within the Reserve. The total area of these ecosystems is 65,150.1 ha (67.1 % of the Reserve's area), which demonstrates the importance of this site for conservation of landscape and biological diversity at national and European level. The most valuable ecosystems are: 7110 Active raised bogs – 2,356 ha, 7140 Transition mires and quaking bogs – 37,533 ha, 91D0 Bog woodland – 18,599 ha.



Description of species and habitats targeted by the project

The Olmany Mires Reserve is an important place of water birds concentration for breeding and during migrations. The site is of international importance primarily because it supports one of the largest population of globally threatened greater spotted eagle *Aquila clanga* (18-20 pairs) in Europe. This species inhabits highly waterlogged sedge and sedge-reed fen mires, adjacent to hard to reach large forests. Greater spotted eagle builds nests on small islands among mires and even on individually standing trees. Because of lack of trees with rich head in the central part of the mire, birds often make nests in the tangles of fallen dry trees at a height of 1.5 - 6 m. In addition, the Reserve's mires are habitats for aquatic warbler (0-150 males), great snipe (up to 20 males), black-tailed godwit (20-50 pairs), and curlew (5-10 pairs).

Conservation problems and threats

The most important threats to Olmany Mires' biodiversity are:

Economic activities of forestry enterprises within the site. At present a road is being constructed within the Reserve, mainly for forestry purposes and to increase intensity of forest cuttings. Taking into consideration that waterlogged forests are valuable as breeding places of large birds of prey, primarily greater spotted eagle, it is necessary to ensure conservation of key places for nesting of these species.

Disturbance of breeding birds by local people during collection of berries and mushrooms. Unlimited visits of local people to the Reserve for collection of berries and mushrooms disturb animals, lead to essential decline of their foraging base (berries), and in dry years cause large fires

Previous conservation efforts at the site

In 2015 the National Academy of Sciences of Belarus developed and approved the Management Plan for the Olmany Mires protected area. Main measures of the Management Plan are aimed at conservation and sustainable use of biodiversity, maintenance of hydrological regime of the mires, reduction of anthropogenic pressure on natural systems and objects. Under the proposed project, these measures aimed at conservation of globally threatened species and their habitats will be implemented.

Proposed project activities (Outputs 1.4, 3.4)

During project implementation the disturbance of breeding birds will be reduced and economic activities will be optimized within the Reserve. To prevent economic activities in places of occurrence of important bird species it is planned to conduct an inventory of breeding plots, development of measures for their protection and transfer for protection by means of preparation of security obligations. Protection measures will include passive, as well as active measures, aimed at improvement of habitat and breeding conditions.

Measures will be aimed at reduction of impact of disturbance factor on the population of greater spotted eagle considered the largest in Europe. According to BirdLife International, the global population of the greater spotted eagle is in the range of 810 – 1,110 pairs; 150-200 pairs nest in Belarus. The aim is to stabilize the population of the greater spotted eagle (aiming to have 15-25 pairs) through artificial nest construction, regulation of the disturbance factor and hydrological restoration. A complex of measures will be developed and implemented, aimed at reduction of negative impact of visits of local population to the Reserve: allocation of "quite zones" during the breeding season, determination of number of visitors for collection of berries and mushrooms, regulation of terms and places for such collection, establishment of limits for cranberries harvesting, corresponding information campaign among local people.

Due to a lack of nesting places for the greater spotted eagle, artificial nests will be established. One of the key drivers of the decline is low nesting success of the species. On average, for Belarus, over a multi-year period of monitoring, the nesting success of the species had been recorded at 57%. This is 20% below the default value for this species needed for continued normal reproduction of the species, accounting for natural mortality of fledglings (Meyburg et al., 2004). One of the causes of low nesting success is lack of suitable trees with developed crowns with trunk forks at peatland forests. Birds are forced to create nests in very unstable bases – in the cross-sections of fallen trees, at rotten branches, etc. It has been proven that this causes exceptionally high clutch mortality or fledgling mortality. The project relies on literature studies for the species that suggest that artificial nests could contribute to raising breeding success. For higher effectiveness, this will be tested in the least disturbed area with the largest group of the species (Olmany mires, 18-20 pairs); if successful, the experience will be replicated throughout Belarus, Lithuania and Poland.

In addition, because Olmany Mires forms part of the transboundary Ramsar site “Olmany Mires - Mire Massif Perebrody” that lies between Belarus and Ukraine, the Management Plan for Olmany Mires will be coordinated with that of the Management Plan on the Ukrainian side of the transboundary site.

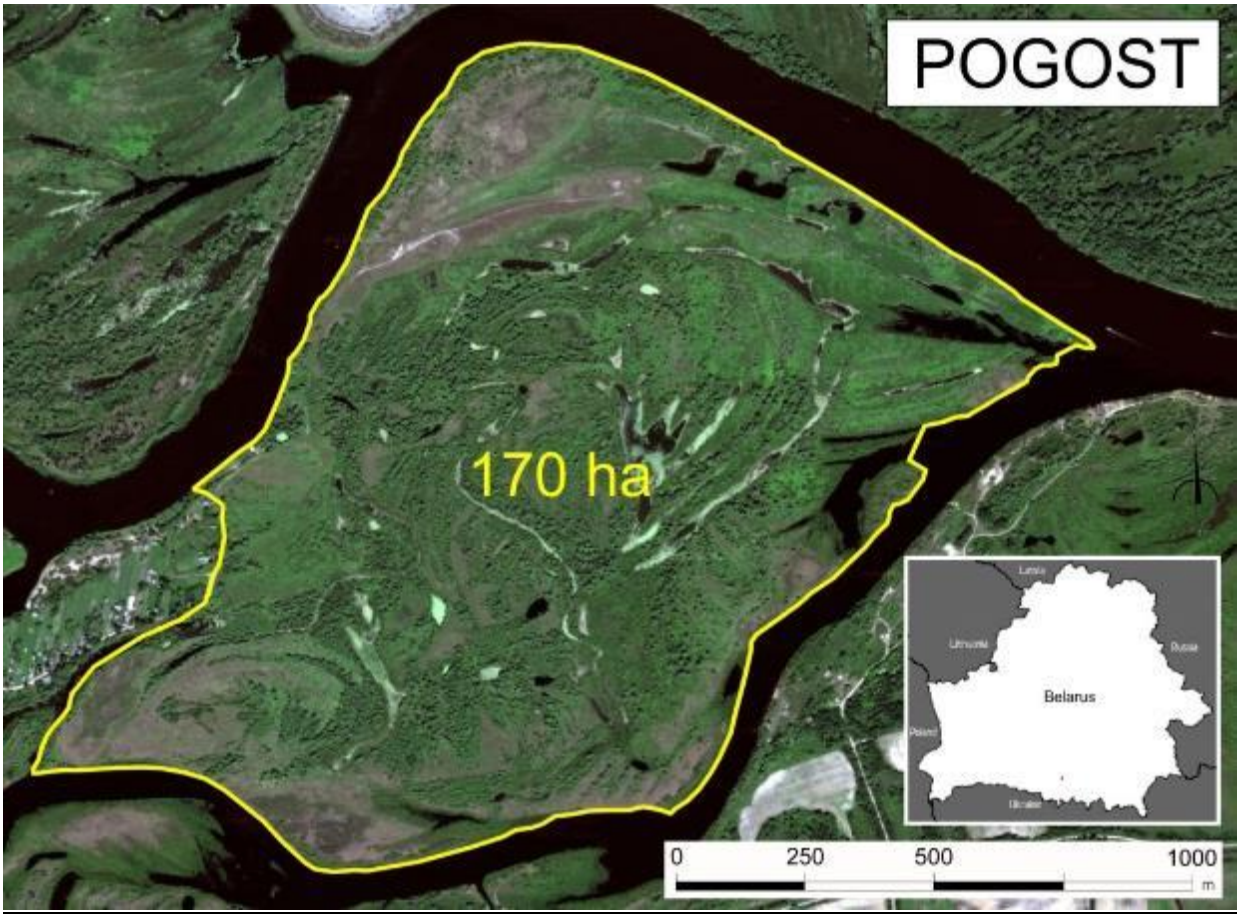
Management plans will be coordinated specifically in relation to activities addressing sustainable cranberry collection and conservation and reduced disturbance for *Aquila clanga*.

[To return to pilot site table of contents, click here]

Pilot Site 5. Mid Pripyat (the Pogost Meadow)

Surface area and geographical location

The total surface of the protected area Mid Pripyat is 99,000 ha. The map below depicts its location. The project actions will be implemented on the Pogost Meadow (170 hectares).



Other protection status according to national or regional legislation

The entire territory of Pogost Meadow mire lies within a national protected area Mid Pripyat (Reserve, IUCN category IV). It is also considered a Ramsar site.

Main land uses and ownership

100% of the area is under nature conservation and is state-owned.

Description of the project area

The Pogost Meadow with a total area of 227.14 hectares is located at the mouth of the Stviga River (at the point of inflow of the right tributary of the Stviga River into the Pripyat River). Practically from all sides, the meadow is surrounded by reservoirs of the channels of the Pripyat and Stviga rivers and by an

oxbow in the west. Behind the oxbow is located the village of Pogost. Following declines in pasture load on the meadow, its open character has changed and it has become overgrown with shrubs

Importance of the site for conservation of species/ habitat targeted at national and international levels

The Pogost Meadow before its overgrowth with shrubs used to be a place of mass concentration of birds during spring migration. More than 20,000 geese, ducks and waders stopped here for foraging and rest. The meadow also was a breeding habitat for some near-threatened species: lapwing, great snipe, terek sandpiper, ringed plover, black-tailed godwit, and redshank.

Description of species and habitats targeted by the project

At present, previously numerous breeding waders have practically disappeared from the site. Population of waders breeding here has declined during 1990 - 2010 as follows: lapwing - from 200 to 15 pairs, great snipe - from 40 to 0 pairs, terek sandpiper - from 30 to 1 pair, black-tailed godwit - from 20 to 2 pairs, little tern - from 50 to 0 pairs.

Conservation problems and threats

Earlier, the village of Pogost had about 300 houses and about 250 cows, which were pastured mainly in the Pogost meadow. Due to this the meadow was completely open. In 1951, shrubs occupied only about 12 hectares. Later, especially after 1990s, the number of cows in the village declined to 40, and correspondingly the pasture load decreased sharply. As a result the meadow quickly began to get overgrown with shrubs. By the year 2000, continuous thickets of shrubs cover more than 48 hectares. By 2010, continuous thickets of shrubs covered more than 50%. Over the rest of the area of the meadow, scarce shrubs appeared. These succession vegetation changes have led to a significant reduction and disappearance of the majority of bird species. Numerous waders have practically disappeared (lapwing, great snipe, terek sandpiper, ringed plover, black-tailed godwit, redshank), as well as terns (common tern, black tern). In spite of overgrowth with shrubs, the numbers of mallard and spotted crake have not changed much.

Previous conservation efforts at the site.

No conservation efforts were conducted at the site previously.

Proposed project activities

Within the project (Output 1.4) it is planned to clear the entire meadow of shrubs using tractor and mulcher. Annual grazing with calculated intensity will be organized on the meadow directly after the clearing. If necessary, growing shrubs will be repeatedly cut by rotary mower. Traditional use of the meadow for grazing will be organized by local farmers raising cows for beef.

As a result of implementation of these measures, the meadow will again become favorable for breeding of most of the wader species; the value of the meadow for migrating birds will be restored as well. Once the meadow is restored and its sustainable use organized, it will be included in the network of tourism routes.

[To return to pilot site table of contents, click here]

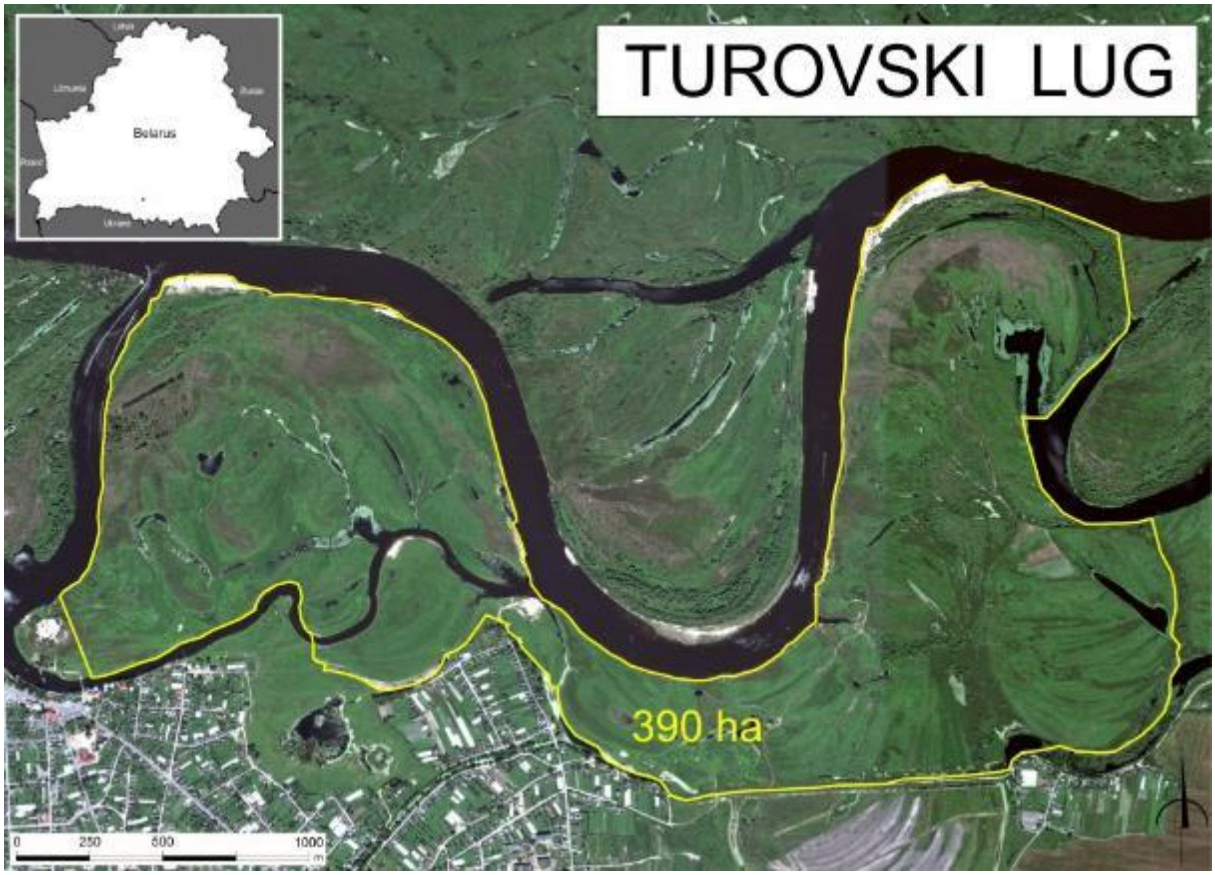
Pilot Site 6. Turov Meadow

Surface area and geographical location

The total surface of protected area Turov Meadow is 390 ha. The map below depicts its location.

Other protection status according to national or regional legislation

The entire territory lies within a local protected area (Reserve, IUCN category VI).



Main land uses and ownership

100% of the area is under nature conservation and is state-owned. A section of PA (147 ha) is being managed by APB BirdLife Belarus.

Description of the project area

The Turov Meadow with a total area of 390 hectares is located in the floodplain of the Pripyat River in the vicinity of Turov town. The appearance of the Turov Meadow resembles a tundra landscape. The Turov Meadow had an open structure until 1990, with only single shrubs and willow trees present. Elevated plots of the floodplain alternate with a considerable quantity of small temporary and permanent floodplain reservoirs. The grassy vegetation is low, which is explained by the intensive pasture of cattle and features of soils.

The meadow is in immediate proximity to Turov town. In spite of this, the majority of its area is difficult to access in spring (it is possible to get to the meadow only by boat). The anthropogenic pressure to the territory considerably increases when the flood water drops. The major economic use of the land is pasture of cattle and domestic geese.

The Turov Meadow can become one of the most important areas for development of ornithological tourism. At present, the site is already visited spontaneously by numerous groups of foreign tourists and is a popular place for birdwatchers. The Turov Ringing Station has operated here since 1999, focusing mainly on migration of waders. More than 50 thousand water birds have been ringed over the 17 years of operation of the Ringing Station.

Importance of the site for conservation of species/ habitat targeted at regional, national and EU levels

The site is of great value for conservation of water bird species' populations during migration and nesting. Such globally threatened species as lesser white-fronted goose *Anser erythropus* and species listed in the Red Data Book of Belarus - pintail *Anas acuta,* ferruginous duck *Aythya nyroca,* golden plover *Pluvialis apricaria,* black-tailed godwit *Limosa limosa* - stop here for rest and feeding during spring and autumn flights.

The most numerous species during spring passage are: wigeon *Anas penelope* – 10-20 thousands individuals, ruff *Philomachus pugnax* – 10-30 thousands individuals, and black-tailed godwit *Limosa limosa* – up to 10 thousands individuals. For ruff and black-tailed godwit, the Turov Meadow is the major place in Eastern and Central Europe for replenishment of energy resources before flying to the main breeding grounds.

In spring, the Turov Meadow becomes a system of islands surrounded with flood waters. The whole range of terns registered in Belarus is found breeding here including, little tern *Sterna albifrons* listed in the Red Data Book. During some years, little gull *Larus minutus* and common gull *Larus canus* also nest on the Turov Meadow. There are other Red Data Book species breeding here, such as pintail *Anas acuta,* black-tailed godwit *Limosa limosa,* oystercatcher *Haematopus ostralegus* and marsh sandpiper *Tringa stagnatilis*. One of the largest colonies of terek sandpiper *Xenus cinereus* and ringed plover *Charadrius hiaticula* in Belarus is located here. There are also two lekking places of great snipe *Gallinago media* with total number of about 100-120 males.

Description of species and habitats targeted by the project

Currently, breeding populations of previously numerous waders have declined significantly in Turov Meadow. Populations of many wader species declined from 1990 till 2014: lapwing from 200 to 80 breeding pairs, terek sandpiper from 30 to 5 breeding pairs, black-tailed godwit from 80 to 30 breeding pairs, ringed plover from 80 to 20 breeding pairs.

Conservation problems and threats

As a result of changes in agricultural use of the territory from 1990 to 2000, rapid overgrowth of the Turov Meadow by shrubs has started. Over the last few decades the area of shrubs has doubled. Previously, shrubs were stretched along the river, and now they cover 30% of the territory in the western part of the meadow and up to 60% in the eastern part. The central part of the meadow, where colonies of birds are located, is still open. Nevertheless, a majority of bird species' populations and especially black-tailed godwit, ringed plover and terek sandpiper have declined significantly.

Previous conservation efforts at the site

The NGO APB BirdLife Belarus has implemented activities within the UNDP/GEF Small Grants Programme to prevent the overgrowth of the Turov Meadow with shrubs. In 2013-2014 mechanized mowing was implemented on part of the territory. Since 2014, grazing of cows is conducted during summer time. A new breeding site for great snipe was formed at the area cleared of bushes. However, these measures are temporary and were conducted by volunteers as one-time action. The project will establish sustainable traditional use (grazing and mowing) of the meadow by local farmers with a business in raising cows for beef. This will prevent overgrowth.

Proposed project activities

The project will implement a plan for sustainable use of the meadow for grazing and mowing, jointly with local farmers (Output 1.4). First, most of the meadow will be cleared of shrubs by tractors and mulchers. Annual grazing with calculated intensity will be organized on the meadow directly following clearing. If necessary, growing shrubs will be repeatedly cut by rotary mower. Traditional use of the meadow for grazing will be organized by local farmers involved in raising cows for beef. As a result of implementation of these measures, the meadow will again become favorable for breeding of most wader species; the value of the meadow for migrating birds will be restored as well. Annual monitoring of

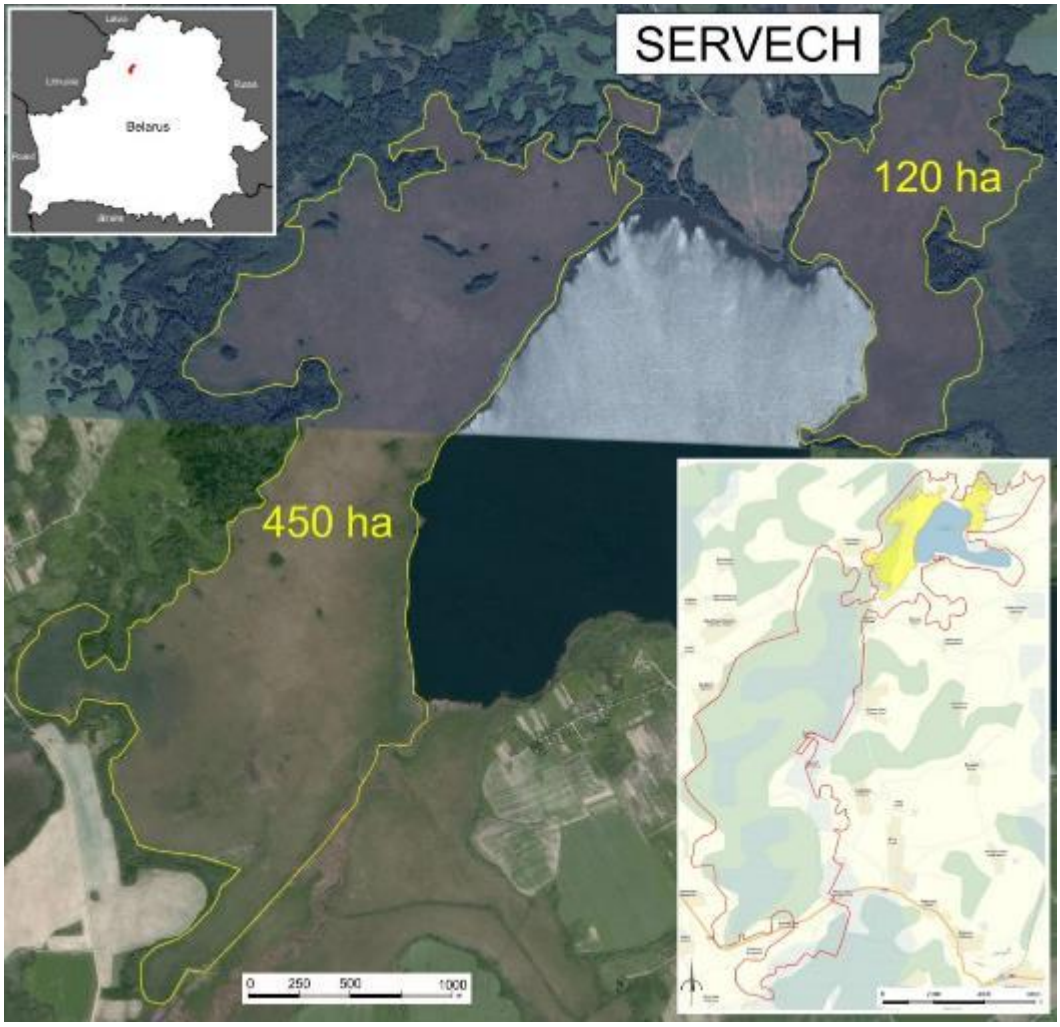
migrating and breeding water birds will be continued. Once the meadow is restored and its sustainable use organized, it will be included in the network of tourism routes.

[To return to pilot site table of contents, click here]

Pilot Site 7. Servech

Surface area and geographical location

The total surface area of this protected area is 9,068 ha. The pilot project area is 570 ha. The map below depicts its location.



Protection status according to national or regional legislation

The entire territory of Servech mire lies within a national protected area (Reserve, IUCN category IV). The site is also considered a Ramsar site.

Main land uses and ownership

100% of the area is under nature conservation and is state-owned (Glubokoe Forestry).

Description of the project area

The site is a fen mire of mesotrophic type, situated on the edge of a large raised bog. This fen mire has special value for biodiversity conservation as it is the only sedge fen mire of mesotrophic type preserved in the near-natural state in the transboundary area between Lithuania and Belarus. Such mires were quite widespread in the past in Vitebsk and Grodno regions of Belarus, but almost all of them were drained for agriculture from the 1960s to the 1980s. This territory is unique: it is the only fen mire in the whole Vitebsk Poozerie region, where the endangered European biotope – carbonaceous mires (code 7140 of the Habitat Directive) – is present, and where several globally-threatened bird species (aquatic warbler, greater spotted eagle, great snipe, and curlew) are found (Lobanok P.I., 2008).

Importance of the site for conservation of species/ habitat targeted at regional, national and EU levels

At present, the distribution range of the aquatic warbler is fragmented, and key habitats are situated at a significant distance from each other. The Servech fen mire is located between the main center of the species distribution range in the Pripyat Polesie region (mires Zvanets and Sporovsky) and peripheral habitats in Lithuania (mires in the Neman delta, Zuvintas).

Description of species and habitats targeted by the project

The Servech mire has the potential for creating new habitats for the aquatic warbler *Acrocephalus paludicola*. This species is listed as vulnerable by IUCN (VU), it is listed in Annex I of the European Union's Birds Directive, in Annex II of the Bern Convention, Annexes I and II of the Bonn Convention, and in the National Red Data Book of Belarus (CR). In 2002, the area of the fen mire suitable for aquatic warbler within the Servech Reserve was 558 ha, and aquatic warbler numbers here were 200-250 males (Aquatic Warbler Action Plan, 2012). At present, the area of open sedge fen mires has shrunk to 200 ha, and the aquatic warbler numbers have decreased to 31-38 males (AW Action Plan, 2012). The decline is due to overgrowth of open mire with shrubs and the lowering of the total productivity of the ecosystem.

The site is also of great importance in the region for conservation of the curlew (2 pairs) and great snipe (21-30 males). These bird species are listed in the IUCN Red List (NT), Annex I of the Bird Directive, Annex II of the Bern Convention, Annexes I and II of the Bonn Convention, National Red Data Book of Belarus (EN).

This site also offers the potential for preserving the unique endangered biotope - carbonaceous mires (code 7140 of the Habitat Directive, Palearctic habitat classification: 54 Fens, transition mires and spring mires, 54.2 Rich fens). The total area of this biotope here is 835 ha. The vegetation cover is formed mainly by sedges (mainly *Carex lasiocarpa*), Brown Mosses and low grasses. Carbonaceous mires are characterized by high floristic diversity and are habitats for many rare and endangered plant species. These are key biotopes for many species of Orhidacea family (fen orchid *Liparis loeselii*, frog orchid *Coeloglossum viride*). The distribution area of many rare plant species is shrinking as a result of overgrowth of parts of the open mire with shrubs. Removal of shrubs will allow the preservation of sedge fen mires with typical composition of unique species.

Conservation problems and threats

The main threats to the Servech fen mire as key aquatic warbler and great snipe habitat are: overgrowth of open sedge with birch trees, shrubs, reeds and lowering of the total productivity of the mire ecosystem. Overgrowth leads to disappearance of most animal and plant species typical for sedge fen mires, including aquatic warbler and great snipe. Encroachment of shrubs and reeds into the open fens is caused by cessation of traditional economic use of mires for hay making with simultaneous climate change and disruption of the hydrological regime. Dry years with an absence of spring flooding have become more frequent and such conditions speed up the spread of shrubs. Lowering of the total productivity of the fen mire ecosystem leads to accelerated vegetation succession from fen type to transition mire. Simultaneously, the typical fen mire species are displaced by species of transition mires. The mire's productivity decline also results in a decline of insect biomass and numbers of the aquatic

warbler and great snipe. The lowering of the productivity is accelerated by perennial accumulation of old vegetation, adversely affecting the growth of new plants.

Previous conservation efforts at the site

No nature conservation activities have been implemented in the Servech fen mire so far. It is anticipated that before implementation of this project begins, a management plan for the Ramsar site "Servech" will be elaborated and it will include measures to remove shrubs and mowing/ burn-off of herbaceous vegetation, which will be implemented under the GEF project.

Proposed project activities

The Servech mire is selected as a project area with the aim of creating a key aquatic warbler habitat in the transboundary region of Lithuania-Belarus. Under Output 3.1, the open sedge fen mire will be restored, as well as the potential ecological productivity of the mire ecosystem, by means of the removal of shrubs (birch and willow) and reeds in an area of 670 ha using mechanical cutting by special machinery. Such measures will enable the maintenance of the open character of the sedge mire. To increase total productivity of the mire ecosystem and prevent overgrowth, annual controlled burning of old vegetation will be carried out during the winter months. Winter burning of vegetation will destroy young shrubs and birch trees. Burnt-out vegetation biomass significantly increases total soil mineralization, in turn increasing vegetation productivity and total productivity of the mire ecosystem. Together, these measures will enable an increase in the numbers of aquatic warbler from 30 to 90 singing males by project end.

[To return to pilot site table of contents, click here]

Pilot Site 8. Dikoe fen mire

Surface area and geographical location

The total area of the Ramsar site Dikoe fen mire is 15,206 ha. The map below depicts its location. Project activities will be implemented on 1,250 ha of the mire.

Other protection status according to national or regional legislation

The entire territory of Dikoe fen mire lies within a national park “Belovezhskaya Puscha” (Reserve, IUCN category IV). Dikoe fen mire is also considered a Ramsar site.

Main land uses and ownership

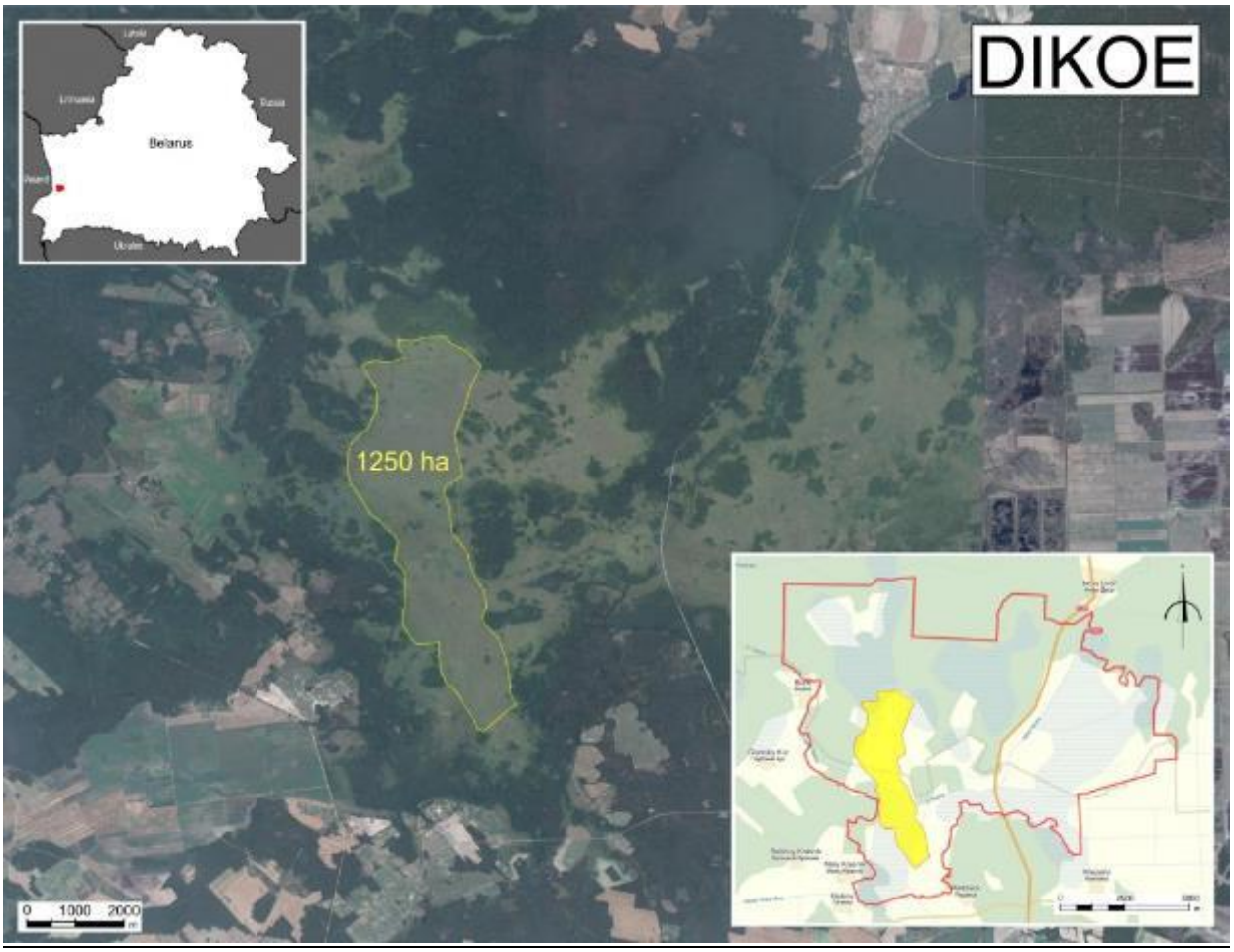
100% of the area is under nature conservation (national park) and is state-owned.

Description of the project area

The Dikoe fen mire is one of the largest fen mires of mesotrophic type in Europe preserved in a natural state. Fen mires prevail by area; numerous forested islands are located among mires. At present the mire is in transition development stage between *Hypnum*-sedge and sedge-*Sphagnum* mire types; the western part of the mire is typical fen mire, and the eastern part is transition mire. Pine trees, spruces and silver birch forests dominate among the forest vegetation. The Dikoe mire is located on the watershed of two large basins: Baltic and Black Sea. Two famous rivers originate from the central part of the mire - the Narev River (Baltic basin) and the Yaselda (Black sea basin). The mire forms and maintains the hydrological regime in the region and in the national park "Belovezhskaya Puscha". The hydrological regime on most of the territory is close to the natural state.

The mire is of international importance as it supports breeding of globally threatened species (VU): aquatic warbler *Acrocephalus paludicola* (150-200 males), greater spotted eagle *Aquila clanga* (4-5 pairs). The site also supports 10 plant communities considered rare in Belarus and Europe, including

those of international importance: *Betuletum humilis, Caricetum chordorrhizae, Caricetum juncellae*, and *Caricetum limosae* that were widespread on Polesian mires in the past.



Importance of the site for conservation of species/ habitat targeted at regional, national and EU levels

At present, the distribution range of the aquatic warbler is fragmented, and key habitats are situated at a significant distance from each other. The Dikoe fen mire is located between the main centers of the species distribution range in the Pripyat Polesie region (mires Zvanets and Sporovsky) and Polish fen mires (Biebzha and Lublin fen mires).

Description of species and habitats targeted by the project

Dikoe fen mire is one of the largest habitats of globally threatened species (VU): greater spotted eagle *Aquila clanga* (4-5 pairs), aquatic warbler *Acrocephalus paludicola* (150-200 males), great snipe *Gallinago media* (20-30 males, NT), European Bison *Bison bonasus*, great raft spider *Dolomedes plantarius, Graphoderus bilineatus.*

The site is also characterized by the unique endangered biotope - calcareous mires (code 7230 of the Habitat Directive). The total area of this biotope in Dikoe mire is 1,560 ha.

Conservation problems and threats

Changes in the traditional use of the mire (cessation of mowing, absence of controlled burning of vegetation) are the main reasons for rapid overgrowth of the mire with shrubs and a decrease in numbers of the aquatic warbler, which is an indicator species of fen mires.

Disruptions of the hydrological regime: Straightening of the Narev River and digging of several canals in the western part of the mire has caused declines in water level during summer. This, in turn, has led to a reduction in the water vole population, which is the main food for the greater spotted eagle. In addition, the decreased water table has led to growth of shrubs and trees, including forest vegetation. Encroachment of forest vegetation on the open mires in the periphery of islands is observed almost everywhere in the western and central parts of the mire. Spreading of shrubs, young white birches and common alders, sometimes aspen and spruce, are observed.

Speed-up of natural successions: The main part of the Dikoe mire is at transition stage (from *Hypnum*-sedge to sedge-*Sphagnum* mire types). This process has considerably accelerated during the last 30-40 years, when the use of the mire for haymaking was stopped. As a result, the area of sedge fen mires is shrinking and the number of globally threatened species (aquatic warbler, greater spotted eagle, great snipe, great raft spider *Dolomedes plantarius, Graphoderus bilineatus* are declining.

Previous conservation efforts at the site

The Dikoe site was designated as a protected area for the first time in 1968, when the Decree of the Council of Ministers № 342 stated the creation of Hydrological Reserve of Republican Importance "Dikoe" with a total area of 7,400 ha. In 1999, according to the decision of Brest and Grodno Regional Executive Committees, an area of 7,781 ha was added to the national park "Belovezhskaya Puscha" (Biosphere Reserve and World Heritage site).

In 1998 the Secretariat of BirdLife International confirmed the creation of Important Bird Area (IBA) named "Dikoe" (total area of 7,400 ha). In 2000 the decision was taken to rename the IBA "Dikoe" into IBA "Dikoe Mire" and to expand its area to 15,206 ha.

In 1999-2004 the management plan for the IBA "Dikoe Mire" was developed and partially implemented. This mainly included implementation of activities to optimize the hydrological regime of the mire in the eastern part.

Proposed project activities

The Dikoe fen mire is selected as a project area with the aim of creating a key and stable habitat in the transboundary region of Poland-Belarus. Under Output 3.1, the open sedge fen mire and the ecological productivity of the mire ecosystem will be restored by means of the removal of shrubs (birch and willow) in an area of 1,250 ha using mechanical cutting by special machinery. Such measures will enable the maintenance of the open character of the sedge mire. These measures will enable an increase in the numbers of aquatic warbler from 150-200 to 250 singing males by project end. The hydrological regime of a part of the fen mire will also be optimized (about 1250 ha, see the map). To prevent decline of water levels, the straightened channel of the Narev River and drainage canals will be closed using a series of sluices, which will allow maintenance of the water level at the soil surface during May-July.

[To return to pilot site table of contents, click here]

Pilot Site 9. Dokudovskoe

Surface area and geographical location

The total surface area of this site is 1,025.00 ha. The map below depicts its location.

Protection status according to national or regional legislation:

No protection status; unprotected

Main land uses and ownership

100% of the area is under forestry. The entire area is state-owned (Lida Forestry).

Description of the project area

Before peat extraction, the Dokudovskoe mire was the largest sedge open fen mire in the region with a total area of 7,000 ha. It is assumed that one of the largest populations of the aquatic warbler in the region used to breed at this site. About 6,000 ha of the mire was drained for peat extraction, and the remaining natural part of the mire was designated as a protected area - the Dokudovskoe Reserve (715 ha). About 1,450 ha of the extracted peatland has been rewetted and this area is now a mosaic of small water bodies and mineral islands. The project site (1,025 ha) is located on the part of the peatland where peat extraction has been completed, and currently it is bare peat fields without any vegetation (peat extraction was completed here in 2010-2015). Existing drainage canals continue to drain the territory and the level of ground water is 30-60 cm below the soil surface.

Importance of the site for conservation of species/ habitat targeted at regional, national and EU levels

At present, the distribution range of the aquatic warbler is fragmented, and key habitats are situated at a significant distance from each other. The Dokudovskoe site is situated between the main center of the aquatic warbler distribution range in the Pripyat Polesie region (mires Zvanets and Sporovskoe) and peripheral habitats in Lithuania (mires in the Neman delta, Zuvintas mire).

Description of species and habitats targeted by the project

The Dokudovskoe mire has the potential for creating new habitats for the aquatic warbler (*Acrocephalus paludicola*) – a globally threatened bird species. This species is listed as vulnerable by IUCN (VU), it is listed in Annex I of the European Union's Birds Directive, in Annex II of the Bern Convention, Annexes I and II of the Bonn Convention, and in the National Red Data Book of Belarus (CR). It is assumed that one of the largest populations of the aquatic warbler in the region used to breed here.

Conservation problems and threats

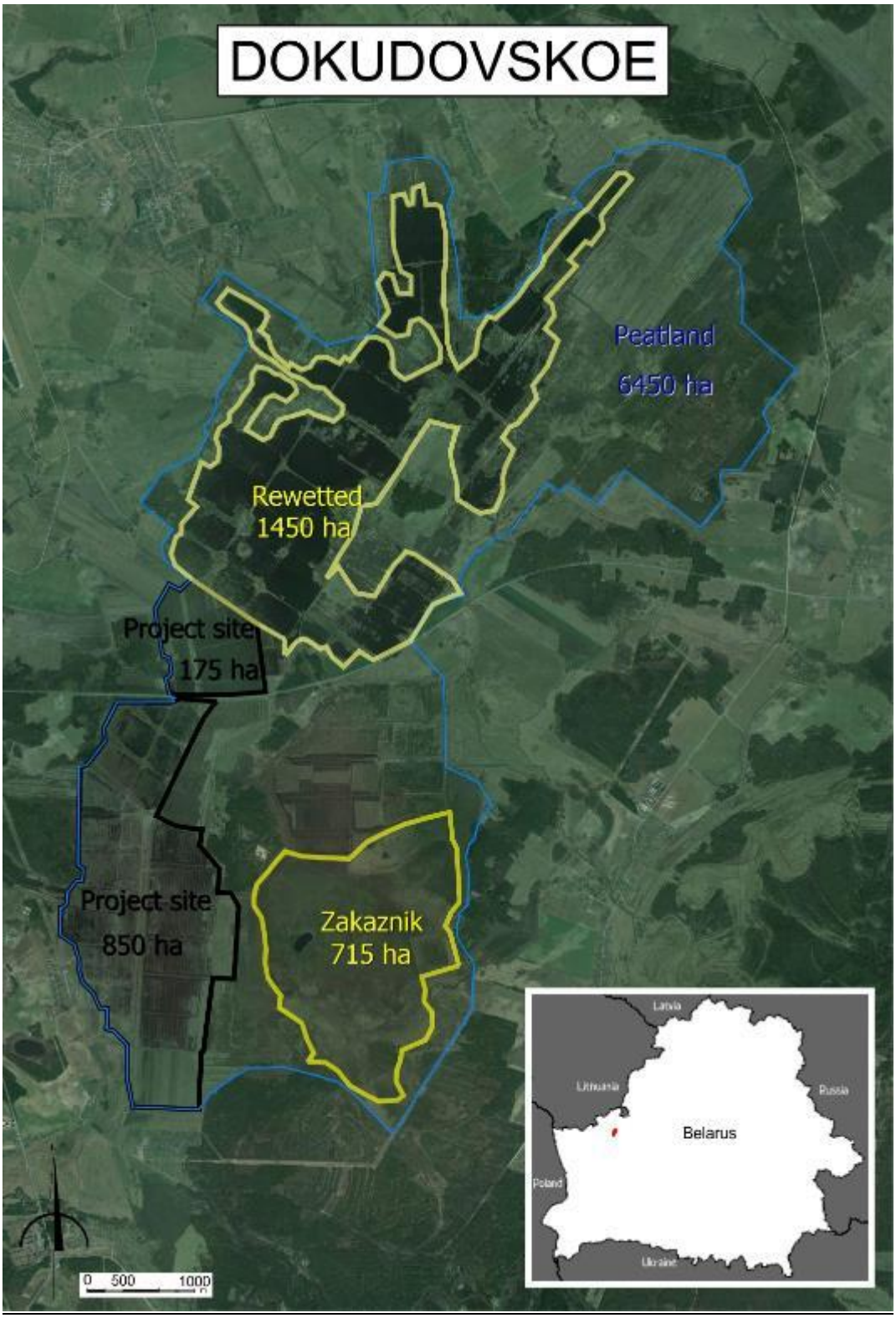
A drained peatland after peat extraction is prone to wild fires. Further, it emits 10-20 tons of CO_2 per hectare per year as a result of mineralization of the remaining peat soil. An extracted peatland cannot be used in forestry or agriculture as it is impossible to ensure that its soil is dry enough for economically profitable activities. Therefore, the only way to use an extracted peatland sustainably is to organize its re-naturalization for nature conservation and recreation purposes.

Previous conservation efforts at the site

1450 ha of the extracted peatland of Dokudovskoe was rewetted earlier to prevent peat fires. This plot is now a mosaic of small water bodies and mineral islands. The project site (1,025 ha) comprises a part of the larger peatland where peat extraction was recently completed.

Proposed project activities

The project envisages restoration of the sedge fen mire in the area of extracted peatland using accelerated technology (Activity 3.1.2): seeds and vegetative parts of typical mire plants will be planted on the 175 ha plot within the project site area, and then flooding will be implemented. In the rest of the project area (850 ha), rewetting will be conducted without planting of sedges. By doing this, restoration of typical fen mire vegetation will be achieved within 3-6 years. In the area where partially-restored mire vegetation (150 ha) has been previously established, the removal of reeds will quickly restore sedge vegetation communities. After recovery of the mire vegetation, relocation of aquatic warbler in the restored parts of the Dokudovskoe mire is planned (but this is likely to be post-project).



[To return to pilot site table of contents, click here]

ANNEX 2: JUSTIFICATION AND ACTION PLAN FOR CONSERVATION AND SUSTAINABLE MANAGEMENT OF FEN MIRES (OUTPUTS 1.4, 3.1)

Overall description of the problem

Up to the 1960s, natural mires occupied an area of 2.9 million hectares in Belarus (14.2% of national territory). From 1960 through 1980, about 70% of peatlands were drained for agriculture and forestry. To date, about 863,000 ha of mires remain in their natural state (4% of national territory), and these areas are of global importance for biodiversity conservation. Fen sedge mires in Belarus are the most important habitats for conservation of the global and national populations of globally threatened (VU) and near-threatened bird species. Fen sedge mires are preserved in their natural state within the territories of the following protected areas: Zvanets, Sporovsky, Dikoe mire within the national park Belovezhskaya Puscha, Olmany Mires, and Servech. These protected areas support a considerable part of the global and national populations of globally threatened species. Despite the fact that the key habitats of globally threatened species (mires and floodplain meadows) are designated as protected areas, the unique biodiversity of these ecosystems is declining rapidly.

Table 1: State of globally threatened species populations in Belarus (2013)

Species	Protection Status	Population number		Belarussian population as % of European	% change in Belarus (1990-2013)	Habitats
		Europe	Belarus			
Greater spotted eagle *Aquila clanga*, pairs	VU	810-1100	100-120	12.3-10.9	-20	Fen and transition mires
Aquatic warbler Acrocephalus paludicola, males	VU	12000-13000	3100-5600	25.8-43.0	-40	Sedge fen mires
Great snipe *Gallinago media*, pairs	NT	163200-176000	4600-6000	2.8-3.4	-20/-50	Fen mires, floodplain meadows
Eurasian curlew *Numenius arquata*, pairs	NT	420 000	900-1200	0.2-0.3	-30	Open fen mires and raised bogs

The main reason for population decline of these globally threatened species, in Belarus and throughout the distribution range, is overgrowth of open sedge fen mires and meadows with shrubs and reeds. Measures such as establishment of nature conservation areas, restrictions on economic activities, and other passive protection measures do not prevent degradation of sedge fen mires. To a large extent, open sedge fen mires in Belarus have been formed and maintained in their open state due to the traditional human economic activities of hay making and grazing. As a result of the transfer of mowing and grazing activities to ameliorated lands in the beginning of 1990s, the traditional use of fen mires by local people either sharply declined or came to a complete stop. A reduction in these activities, as well as disruptions to the hydrological regime, have led to rapid overgrowth of fen mires with shrubs and reeds. This has been the main cause of sharp population declines for all species inhabiting these ecosystems, and primarily for such globally threatened species as aquatic warbler, greater spotted eagle, curlew, and great snipe. If the current rate of overgrowth of fen mires continues, further rapid population decline of globally threatened species is predicted. Taking into consideration that Belarussian Polesie is the center of the distribution range and supports more than 30-50% of the global populations of the aquatic warbler and greater spotted eagle, such a further decline of their populations could lead to total extinction of these species. For example, the area of open sedge mires in the protected area Zvanets has declined by 60% from 1995 to 2013, and this has led to a decline in the local breeding population of the aquatic warbler from 3000-8000 males to 2100-4000 males. The same processes of fen mire overgrowth accompanied by population declines of globally threatened species (curlew, great snipe, black-tailed godwit, aquatic

warbler, meadow pipit) are observed in such internationally important reserves as Sporovsky, Servech, and Dikoe mire within national park Belovezhskaya Puscha.

What is clear is that passive protection is not enough for the conservation of biodiversity in such ecosystems, and active measures are needed to restore traditional economic activities that prevent overgrowth of open areas with shrubs and reeds. For example, the use of plant biomass for production of fuel pellets, and construction materials can boost mowing and hay making.

Within the target areas of the project, 28 globally threatened and near-threatened plant and animal species have been registered (Table 2). The active measures undertaken by the project are anticipated to have a positive effect on these species.

Table 2: List of threatened and near-threatened animal and plant species inhabiting target areas of the project (IUCN, 2016)

English name	Scientific name	Project area
Endangered Species, EN		
	Agabus clypealis	Zvanets
Vulnerable Species, VU		
Great raft spider	*Dolomedes plantarius*	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
	Dytiscus latissimus	Zvanets, Sporovsky
	Graphoderus bilineatus	Zvanets, Sporovsky, Dikoe
Shining guest ant	*Formicoxenus nitidulus*	Olmany Mires
European turtle dove	*Streptopelia turtur*	Zvanets, Sporovsky, Olmany Mires, Dikoe
Greater spotted eagle	*Aquila clanga*	Zvanets, Sporovsky, Dikoe, Olmany Mires
Pochard	*Aythya ferina*	Zvanets, Sporovsky, Olmany Mires
Aquatic warbler	*Acrocephalus paludicola*	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
Near Threatened Species, NT		
Pygmy damselfly	*Nehalennia speciosa*	Zvanets, Sporovsky
Red-footed falcon	*Falco vespertinus*	Zvanets, Sporovsky, Olmany Mires
Great snipe	*Gallinago media*	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
Black-tailed godwit	*Limosa limosa*	Zvanets, Sporovsky, Dikoe, Olmany Mires
Curlew	*Numenius arquata*	Zvanets, Sporovsky, Olmany Mires
Meadow pipit	*Anthus pratensis*	Zvanets, Sporovsky, Dikoe, Olmany Mires
Redwing	*Turdus iliacus*	Olmany Mires
Lapwing	*Vanellus vanellus*	Zvanets, Sporovsky, Olmany Mires, Dikoe
European otter	*Lutra lutra*	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
False Ringlet	*Coenonympha oedippus*	Dikoe
Large copper	*Lycaena dispar*	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
	Formica aquilonia	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
	Formica polyctena	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
Black-backed meadow ant	*Formica pratensis*	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
Red wood ant	*Formica rufa*	Zvanets, Sporovsky, Dikoe, Servech, Olmany Mires
	Formica uralensis	Servech
European pond turtle	*Emys orbicularis*	Zvanets, Sporovsky, Dikoe, Olmany Mires
	Linaria loeselii	Servech

Justification of measures for establishment of sustainable use of mire biomass in the project areas

For the conservation of open sedge mire ecosystems and associated globally threatened biodiversity it is necessary to implement active nature conservation measures, including large-scale physical removal of unwanted vegetation. The Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, jointly with the National Academy of Sciences of Belarus, has developed a strategy for the conservation of fen mires by means of establishment of sustainable use of plant biomass in key protected areas important for globally threatened biodiversity. This strategy includes the following areas of focus:

- Establishment of an exeperimental subdivision (to service all PAs) by the Scientific-Practical Centre for Bio Resources and Sporovsky Reserve. This subdivision will provide scientific justification for practical works and will storage, maintain and manage the equipment necessary for mowing and processing of plant biomass.
- In Sporovsky and Zvanets, the project will launch a sustainable wetland biomass collection and processing scheme. There are sufficient amounts of shrub and reed biomass in these large reserves (more than 15,000 ha) to establish cost-effective operation.
- Local business organizations dealing with production of fuel chips and pellets from plant biomass will be involved in implementation of practical works to ensure sustainability of the project measures.
- Vegetation on smaller fen mires, such as Servech and Dikoe, will be mowed by technicians from Sporovsky Reserve once every 3 years. Destruction of birch growth using a mulcher machine (without biomass collection) is planned.

Within the framework of the currently ongoing project of the European Union[7] and during preparation of the present project, technologies and practices for plant biomass collection, processing and use have been developed and partially tested. In addition, the main technology has been procured and approved. The following main spheres of mire biomass use were defined and partially tested on the basis of a market analysis, analysis of mire biomass reserves on these areas, and regional demand for biomass from different sources (agriculture, energetic utilization, and construction).

Agriculture

An analysis of land use on fen mires and meadows within the project areas has shown that a considerable part of protected area lands is under the jurisdiction of agricultural enterprises (land categories "natural hay fields", "mires"). Over the last 10-15 years these lands were effectively not used in agriculture. But due to climate change and increased frequency of droughts, agricultural enterprises now show growing interest in the use of these floodplain meadows and mires. The experience of the EU project "Clima-East" has shown that agricultural enterprises are ready to mow mires to obtain green mass as forage for cattle. The main limiting factors are lack of special high permeability machinery for mowing of mires and the high coverage of shrubs on mires, both of which hinder hay mowing. The effective period for grass mowing for agricultural purposes is about 50-60 days on average, and for mowing for energetic purposes, the period is about 100 working days. Thus, there are two methodologies of grass vegetation mowing envisaged in project areas as follows.

1. The management authority of the protected area prepares highly productive parts of floodplains for mowing by using its own machinery to cut trees and shrubs, and mulch stumps and root sprouts. Following this, the local agricultural enterprises mow the prepared areas using special high permeability machinery.
2. The management authority of the protected area, acting on its own, mows the parts of the floodplain that are important for supporting threatened biodiversity. Mowed biomass is sold to agricultural enterprises in the form of hay, haylage, litter for cattle, or for energetic utilization.

[7] "Clima-East: Conservation and sustainable management of peatlands in Belarus to minimize carbon emissions and help ecosystems to adapt to climate change, while contributing to the overall mitigation and adaptation effort"

Depending on the final product, the production cycle for mowing and processing of grass biomass includes mowing, raking of mowed grass into bales, tossing the hay, hay collection and pressing, loading, transporting, packing (if necessary) and warehousing. Mowed hay will be used mainly as forage for cattle in nearest agricultural enterprises; in case of loss of forage quality, it will be used for energetic purposes.

Vehicles needed:	Available vehicles	Vehicles to be bought under the project
• tractor with dual tires MF 5460 aggregated with a hinged front rotary mower for mowing of grass vegetation and with baler for picking-up and press of hay • tractor with dual tires MF 5440 or its analog, aggregated with rake-tedder and bale loader (used for tossing of grass bales and their loading) • ratrak PB280 with buck-rake (used for transportation of bales to the edge of mire) • wheel tractor with power of up to 100 kW with trolley for transportation of hay bales to storage • telescopic loader - used for unloading, loading and warehousing of bales	• tractor with dual tires MF 5460 • ratrak PB280 with buck-rake	• rake-tedder • rolls loader • trolley for transportation of hay bales • telescopic loader

Energetic utilization of mire biomass

Harvesting and processing of trees, shrubs and grass vegetation for energetic utilization is one of the best decisions for ensuring preservation of mire ecosystems. On most natural mires, trees and shrubs regrow after cutting. Thus, harvesting of biomass needs to be implemented regularly and cannot be considered a one-time measure.

Energetic utilization of mire biomass requires harvesting of trees and shrubs using special machinery with their subsequent grinding into fuel chips. Chips are used as a fuel in local boiler houses. Fuel chips can also be supplied to other consumers and for export; this allows for diversifying sales of raw materials and ensuring steady sale of products. Currently, construction of a boiler house in Berezovski district is under consideration, and this boiler house could become a consumer of all kinds of harvested mire biomass, including pressed mire biomass, consisting of hay, reeds and small shrubs, harvested on the project areas.

Concerning fuel pellets, production of these pellets from mire biomass is currently not profitable due to decline in world prices for energy resources. Thus, it is necessary to consider various options to reduce the cost of their production process, or to procure modern production line with productivity of at least 1.5 tons of pellets per hour.

The main specialized machinery necessary for cutting of trees and shrubs on the mires Zvanets and Sporovsky was procured under the EU Clima East project. In 2015, cutting of trees and shrubs was carried out in these mires over an area of 80 ha. Generally, the available machinery (chainsaws, bush clearing machines, harvester, forwarder with guillotine head, bio-baler, ratrak with mower, mulcher, established on the tractor "Massey-Ferguson") clears the Zvanets and Sporovsky mires of trees and shrubs

over an area of about 1,000 ha per year. However, the available machinery does not fully cover the production cycle for cutting and processing of trees and shrubs, and this leads to high production expenses because of the rental cost of missing machines. This impeded financial sustainability and recoupment of production cycle expenses.

The technology and machinery for tree cutting, processing and transport are as follows: cutting of large trees (diameter more than 15 cm) by special harvester, transportation to storage by a forwarder, grinding into chips by special chips maker machine, transportation of chips to place of use in special trailers. The technology and machinery for shrub cutting, processing and transport are as follows: mulching and baling shrubs using a BioBaler, transportation out of mires with a Ratrak on a buck-rake, grinding into chips using a chip maker machine, and transporting of chips in special trailers. Under fair weather conditions, the time it takes for effective processing of chips is about 100 working days from August to March.

Vehicles needed:	Available vehicles	Vehicles to be bought under the project
• all terrain machine with capacity of not less than 300 l/s, with power takeoff (PTO) and ground pressure of not more than 150 g/cm^2 (Prinoth 500 type), aggregated with installation Biobaler BW55; is used for cutting, partial grinding and pressing into bales of trees and shrubs with diameter up to 15 cm • tractor with dual tires MF 5440 or its analog, aggregated with bale loader; is used for loading of bales on a mire • ratrak PB280 , aggregated with mulcher AHWI M 450 and buck-rake; is used for direct mulching, stumps removal and transportation of bales to the edge of mires • telescopic loader - is used for unloading and warehousing of bales on the edge of mires, or for their loading for further transportation • wheel tractor with power of up to 100 kW, aggregated with: 1) trolley for transportation of hay bales to storage or processing place, 2) chips maker machine "Belarus MP-40" for grinding of obtained biomass into chips • trailer container-chips transporter with volume 60-90 m^3; is used for transportation of chips from chips maker machine to consumers	• Biobaler BW55, ratrak PB280, mulcher AHWI M 450, chips maker machine "Belarus MP-40"	• cross-country aggregate with capacity of not less than 300 l/s (Prinoth 500 type), telescopic loader, wheel tractor with power of up to 100 kW, trailer container-chips transporter with volume 60-90 m^3

Mowing and use of reeds as construction material

Reeds from protected areas Zvanets and Sporovsky are planned to be used as construction material. The production cycle includes mowing of reeds and baling, transportation of bales to the mire's edge, bale transportation to processing and storage location, obtaining of final product (reed Euro-sheaves, mats and other). A special combine for reed mowing Softrak was procured under the EU Clima-East project for this purpose. Reed mowing can be carried out from October until the end of March; effective working time is about 140 working days. Current topical trends are roof reed (diameter 4-5 mm, length 1.2-1.5 m) and reed for mats (diameter 6-7 mm, length 1.5-2.2 m).

Vehicles needed:	Available vehicles	Vehicles to be bought under the project
• tractor with dual tires MF 5440 or its analog, aggregated with bale loader; is used for bale loading and transporting out of mire • wheel tractor with power of up to 100 kW, aggregated with a trolley for transportation of reed bales to storage or processing place • telescopic loader - is used for unloading and warehousing of bales on the edge of mires, or for their loading for further transportation • line for production of mats from reeds	• reed mowing combine Softrak	• telescopic loader, wheel tractor with power of up to 100 kW, line for production of mats from reeds

Partners and organizations participating in project activities for mire biomass use

Government and non-government legal entities dealing with biodiversity conservation and sustainable use and specifically interested in the project's goals will be involved in the implementation of this GEF project. The main partners are listed below.

Sporovsky Reserve

The State Nature Conservation Agency "The Republican Biological Reserve Sporovsky", will be the main partner in mire biomass harvesting. The Scientific Practical Centre for Bio Resources and Sporovsky Reserve will coordinate actions on mire mowing with the project management group, Berezovski and Drogichinski regional executive committees, National Park "Belovezhskaya Puscha", Zvanets Reserve, local population, and other stakeholders. Shrub removal and reed mowing on the Dikoe mire in the National Park "Belovezhskaya Puscha" and in the Servech Reserve will be implemented without biomass collection by The State Nature Conservation Agency "The Republican Biological Reserve Sporovsky" using their own machinery. The Area Sporovsky Reserve has its own zone of temporary customs control, territory for storing and service of machinery.

Mire biomass harvesting. The Nature Conservation Agency on the territory of the Sporovsky Reserve will mow grass and cut trees and shrubs. Local agricultural enterprises will be engaged for mowing in dry years: JSC "Berezovskoe MTS", JSC "Sporovo", Agricultural Production Cooperative "Mezhdulesie".

Storage of finished production. There is a covered warehouse for finished production (1000 square meters), 0.5 ha area that is open and partly asphalted for production warehousing, temporary platforms along the perimeter of the Reserve for warehousing of biomass transported out of the mire.

Work authorization. The legal grounds for implementation of works related to mire biomass harvesting includes permission of the Berezovski regional executive committee for tree and shrub cutting and grass mowing throughout the Reserve and specification in the Management Plan of the Reserve that is approved by the Berezovski regional executive committee and agreed with the Ministry of Natural Resources and Environmental Protection.

End products. Hay and haylage for use in agriculture, energetic chips, and grass biomass for use in energetic purposes.

Consumers. Consumers of energetic products are municipal engineering of Bereza town (energetic chips), and boiler house in the Sporovo village (energetic chips, grass biomass). Hay and haylage will be delivered to agricultural enterprises (JSC "Berezovskoe MTS", JSC "Sporovo", Agricultural Production Cooperative "Mezhdulesie", Agricultural Production Cooperative "Vinets").

Zvanets Reserve

Ltd. "Valeotrans" will realize mire biomass harvesting on the territory of the Zvanets Reserve.

Mire biomass harvesting. Ltd. "Valeotrans" will undertake grass mowing and tree and shrub cutting on the territory of the Zvanets Reserve using specially trained professionals.

Storage of finished production. Ltd. "Valeotrans" has a covered warehouse for finished production (1000 square meters area), 0.3 ha area that is open and partly asphalted for production warehousing, temporary platforms along the perimeter of the Zvanets Reserve for warehousing of biomass transported out of the mire.

Work authorization. The legal grounds for implementation of mire biomass harvesting works includes the permission of the Drogichinski regional executive committee for tree and shrub cutting and reed and grass mowing throughout the Reserve and specification in the Management Plan of the Reserve, approved by the Drogichinski regional executive committee and agreed with the Ministry of Natural Resources and Environmental Protection.

End products. Energetic chips, firewood, grass biomass for energetic use, reed for construction use (roof material).

Consumers. Consumers of energetic products are Municipal Engineering of the Drogichin town (energetic chips), Antopolski and Radostovski village councils (firewood). Reed will be delivered to the Farm "Chiliaki" as a roof material and to the Ltd. "EcoDom" as a decorative and finishing material. Reed mats and decorative fences are planned to be realized through a commercial network, as well as chips for landscape design and decorative mulching.

Conclusion

Proposed aimed at conservation and sustainable use of fen mires can simultaneously support habitats of globally important biodiversity and allow profitable economic use of the mire in the project areas of Zvanets and Sporovsky. These proposed activities are based on the use of grass vegetation, trees and shrubs for energetic purposes, construction, and agriculture. To effectively implement these activities, some equipment needs to be purchased so as to ensure that the entire technological cycle of cutting trees and shrubs for fuel chips, grass mowing for use in agriculture and energetics, and reed harvesting to use as roof material can be implemented.

Equipment for harvesting and sustainable use of mire biomass costing USD 857,021 was purchased under the EU Clima-East project, which forms part of the co-financing packaging for another GEF project (№ 00095301 "Landscape approach to conservation and sustainable management of internationally important biodiversity in wetland and forest ecosystems"). The purchased equipment made it possible to organize cutting of trees and shrubs in Zvanets and Sporovsky and further processing into chips, grass vegetation mowing and reed harvesting. Consumers of energetic production (chips) are local boiler

houses, of grass are agricultural enterprises, and of reed are construction organizations. However, currently (the third year of implementation of the Clima-East project), the financial sustainability of these measures is not completely ensured due to the necessity of renting lacking equipment and due to the lower prices for manufactured products, particularly in the energy sector.

The project plans to purchase the lacking equipment, procurement of which will make it possible to financially secure the entire process from collection to processing of mire biomass in the Zvanets and Sporovsky Reserves, including intensive processing as fuel pellets and reed mats. Based on the available equipment, productivity, and effective working time, that plan is to clear 2,085 ha of the area annually and collect mire biomass from an area of about 950 ha. Over the course of the project, about 35,000 m^3 of chips and 600,000 tons of grass biomass will be produced, which will be used for energetic purposes and agriculture, and about 35,000 reed euro sheaves will be used as roof material and mats.

About USD 300,000 are planned to be spent for cutting and mowing at the project areas during the first 3 years of the project. Complete self-sufficiency of works on mowing of fen mires at Zvanets and Sporovsky is expected to be reached by the end of the third year. Only cutting of trees and shrubs without collection of biomass and its transport out of the mire (this is practiced when the projected coverage of shrubs is less than 15%) will remain economically ineffective. However, further mowing of grass for use in agriculture is planned on these territories in the future, which indirectly will lead to profits. Financial expenses for this activity will be covered by the profit obtained from the other uses of mire biomass.

What is likely to remain unprofitable over the entire period of the project is the cutting of trees and shrubs at the project areas Dikoe and Servech, as this cutting will be implemented without the removal of the biomass out of the mire due to the low projected coverage of shrubs on these mires and the long distance to locations where the mire biomass can be processed. Twice repeated mowing of these project areas is planned under the project.

The project plans to purchase a biomass pelletizing machine of Premos 5000 type and a tractor to drive it, which could be used directly for work on mires, and also as a mobile manufactory for pellets production, established near the places of mire biomass warehousing. Productivity of the pelletizing machine is more than 5,000 kg of production per hour, which will make it possible to reach self-sufficiency in pellet production.

In addition to equipment directly involved in mire biomass harvesting, 2 cars UAZ are to be purchased for transportation of workers, as also a baler grinder that is necessary for delivery of grass biomass to the boiler for burning.

Taking into consideration that the extension of the Sporovsky Reserve's border is about 140 km and its length from north to south is more than 45 km, it is advantageous to build a ferry across the Yaselda River near the village Vysokoe to reduce costs for transportation of biomass from the point of mowing to the storage place. For this purpose it is planned to purchase 12 pontoons and establish them. The total amount will be about USD 20,000.

In addition to the measures described above, the controlled burning of dry vegetation (fire management) will be carried out over certain areas of the mire that is inaccessible to machinery (an area of up to 2,000 ha per year). The periodicity of fire management will be no more than 1 time per 3 years.

Implementation of the measures described will make it possible to realize a sustainable mire economy at Zvanets and Sporovsky and to ensure maintenance of habitats of globally threatened biodiversity, including the main breeding populations of the aquatic warbler.

ANNEX 3: JUSTIFICATION AND ACTION PLAN FOR SUSTAINABLE MANAGEMENT OF MEADOWS AT TUROV AND POGOST (OUTPUTS 1.5)

Mires and floodplain meadows have the greatest value for the conservation of biodiversity in Belarus, being the main breeding habitats for most globally threatened species of animals and plants. The richest floodplain meadows (by species composition), which effectively have no analogues on the European continent, are located in the valleys of the rivers Dnieper, Pripyat, Neman and their main tributaries. Floodplains of these Belarussian Rivers possess vast open areas, alternating with shrub tracts, swamp lowlands, sparse forest plots, single old trees, numerous oxbow lakes, separate low ridges, and alluvial dunes with xerophytic vegetation following a mosaic pattern. The main nesting places for most endangered bird species are situated on these river floodplain meadows (lapwing *Vanellus vanellus*, black-tailed godwit *Limosa limosa*, great snipe *Gallinago media*, black tern *Chlidonias niger*, corncrake *Crex crex*). In addition, the most important habitats of other rare bird species from the Red Data Book of Belarus are concentrated here: night heron *Nycticorax nycticorax*, little gull *Larus minutus*, Eurasian oystercatcher *Haematopus ostralegus*. The floodplain meadows in the Pripyat river valley are also the main spawning grounds for fish and reproduction centers for valuable game waterfowl species such as mallard and garganey.

Before the start of wide-scaled amelioration, the area of floodplain meadows was 169,700 ha. As a result of amelioration, a significant part of floodplain meadows was drained; currently there are about 70,000 ha of floodplain meadows preserved in natural conditions. The major share of floodplain meadows is located in the valleys of Polesian Rivers - Dnieper, Pripyat, Sozh, Neman, Berezina, Goryn and their tributaries.

Up to the 1990s, almost all floodplain meadows were actively used by local people for mowing and grazing. But as a result of population resettlement from villages to towns, the population of villages has declined, as has the number of cattle. In the last 5 years alone (from 2011 to 2015), the local population has declined by 658 people, or 6.9% (from 9,604 people on 01.01.2012 to 8,946 people on 01.01.2016). According to the data of Ozeranski Village Council, the local population in 1973 had 1,070 cows, in 2000 had 540 cows, and in 2016 had 168 cows and 241 horses. Simultaneously, the traditional use of floodplains for mowing and grazing has reduced and in some places it has completely stopped.

Another very important reason for cessation of the use of floodplain meadows for grazing and mowing was changes in technologies of milch cattle breeding. Before the late 1990s, herds of milk cattle were actively grazed on natural pastures, and milk production was at the level of 2,000 kg per lactation. At present, breeding of milch cattle has transformed to stall-keeping of cattle, which allows raising the productivity to 8,000 kg per lactation. Currently, the enterprise "Turovschina" keeps 2,090 cows[8] in stalls in 4 new farms with a year-round one-type feeding. The enterprise continues further modernization of production and transition to new technologies in milch cattle breeding.

As a result of cessation of traditional use of meadows for grazing and mowing, these areas are getting rapidly overgrow with shrubs (mostly willow). Accumulation of old multiannual vegetation caused by absence of mowing has led to reduction of the total productivity of grass and changes in plant species composition. Another threat to meadow ecosystems is expansion of ruderal (weed) plants leading to changes in coenotic and species composition, as well as in the quality of grass stands. Many ruderal plant species (common wormwood *Artemisia vulgaris* and absinthe wormwood *Artemisia absinthium*, thistles *Cirsium spp*., cow parsley *Anthriscus sylvestris*, horse sorrel *Rumex confertus*, Sosnowsky's hogweed *Heracleum sosnowskyi*, Canada goldenrod *Solidago canadensis*, tansies *Tanacetum*), once they appear in natural phytocenoses, form monodominant communities. As a result, floodplain meadows lose their value as breeding habitats for some rare bird species, and as fish spawning grounds. Degradation of meadows

[8] This is 64% of the total milch livestock herd of 3,268 individuals.

due to their overgrowth is the main reason for rapid population decline in Belarus, as well as in Europe, of such indicator bird species as great snipe, black-tailed godwit, lapwing, and garganey.

Measures for maintenance of meadows in an open state and prevention of overgrowth by shrubs were tested by volunteers on separate plots of the Turov Meadow. Monitoring has shown the high efficiency of these measures in order to maintain the value of meadows as breeding habitats of rare bird species, places for bird concentration during migrations, and as fish spawning grounds.

Currently, the Enterprise "Turovschina" is a tenant of Pripyat's floodplain meadows in Zhitkovichi district and of pilot project areas "Turov Meadow" and "Pogost". The total area of agricultural land is 14,431 ha, of which arable land constitutes 6,147 ha. The territory of the Enterprise is located on both sides of the Pripyat River, and includes 19 populated localities, including Turov town and the Pogost village.

Since 2010, breeding cattle for beef is a developing activity in Belarus. Technologies for rearing of beef cattle envisage free grazing on natural pastures, as well as laying-in of fodder on floodplain meadows. The total number of livestock in the Enterprise "Turovschina" at the beginning of 2016 was 765 individuals, 683 of which are clean-bred Limousin. A lot of this livestock is concentrated on the farms of the Chvoensk village; there are 302 cows of the Limousin breed on this farm. The farm has pedigree status for breeding of the Limousin breed of cattle. It has a positive experience in export sales of pedigree animals.

In 2014 and 2015, the Enterprise "Turovschina" has successfully tested use of the floodplain meadow "Turov Meadow" for grazing of beef cattle and laying-in of fodder. To expand the area of floodplain meadows used in agriculture it is necessary to implement a number of special activities to clean meadows from shrubs and to raise their productivity. But the Enterprise "Turovschina" does not have special equipment for the preparation of meadows for traditional uses of grazing and mowing (mulchers for clearing of large areas of shrubs, for service of herds on pastures).

Therefore, the UNDP-GEF project plans to implement, in cooperation with the Enterprise "Turovschina", the following measures for restoration and sustainable use of floodplain meadows:

- Development of scientific justification for restoration and sustainable use of floodplain meadows "Turov Meadow" and "Pogost". The justification should include: identification of measures for clearing of meadows from shrubs and increasing meadow productivity (grass seeding, methods of soil treatment), calculation of terms and intensity of grazing, identification of missing equipment and its specification for sustainable use.
- Procurement of equipment and materials for the sustainable use of meadows.
- Implementation of field works on the sustainable use of meadows.
- Assessment and monitoring of the efficiency of implemented measures.
- Dissemination of the project's experience and improvement of the normative base.

Action plan for establishment of the sustainable use of floodplain meadows at Turov and Pogost

Measure	Responsible organizations
Development of scientific justification for restoration and establishment of the sustainable use of floodplain meadows "Turov Meadow" and "Pogost". The justification should include: identification of measures for clearing of meadows from shrubs and increasing of meadows' productivity (grass seeding, methods of soil treatment), calculation of terms and intensity of grazing,	Institute of the Experimental Botany of the National Academy of Sciences of Belarus, Scientific-Practical Centre for Livestock of the National Academy of Sciences

Measure	Responsible organizations
identification of missing equipment and its specification for sustainable use.	
Procurement of equipment and materials for the sustainable use of meadows:	The Enterprize "Turovschina"
- mulcher for shrubs removal (1);	
- disk mowing machines (2);	
- press-picking machine (1);	
- mobile machines and systems for the serving of free-grazing herds,	
- pedigree animals, to improve breeds and productivity of grazed animals;	
- procurement of grass seeds;	
- procurement of veterinarian drugs;	
3. Implementation of field works on sustainable use of meadows:	The Enterprise "Turovschina"
- shrubs removal by mulcher machine and manually (100 га);	
- grass seeding (moisture-resisting grasses) on areas, cleaned from shrubs;	
- preparation and implementation of additional mowings of pastures in use;	
- annual laying-in of grass fodder on the Pogost meadow;	
- preparation of herd of beef cattle for its transfer to the Turov Meadow and the Pogost Meadow, veterinarian treatment and vaccination;	
- establishment of infrastructure for cattle grazing, implementation of grazing;	
- transfer of livestock herds from floodplain meadows to premises for winter maintenance;	
- preparation of wintering of livestock on the farm "Chvoensk"	
4. Assessment and monitoring of the efficiency of implemented measures:	Institute of the Experimental Botany of the National Academy of Sciences of Belarus, Scientific-Practical Centre for Livestock of the National Academy of Sciences, Scientific-Practical Centre for Bioresources of the National Academy of Sciences
- Complex assessment of ecological and economic efficiency of beef cattle breeding in floodplains	
- Development of ecologically and economically effective methods of sustainable use of meadows for breeding of beef cattle	
- Assessment of the efficiency of the implemented measures in terms of biodiversity and floodplain meadow ecosystems (birds, vegetation communities)	
5. Dissemination of the project's experience and improvement of the normative base	Institute of the Experimental Botany of the National Academy of Sciences of Belarus, Scientific-Practical Centre for Livestock of the National Academy of Sciences, the Enterprise "Turovschina"
- To amend normative documents, regulating the order of mowing and grazing on Protected Areas	
- Dissemination of the project's experience in the practical application of methods of sustainable use of floodplain meadows	

ANNEX 4: JUSTIFICATION AND ACTION PLAN FOR CONSERVATION OF BISON (OUTPUTS 1.2 AND 3.2)

Output 1.2 of the project will implement mosaic forest and meadow management at Nalibokski PA to improve habitat management for the European bison micro population. Output 3.3 of the project will implement a program on exchange of individuals across micro populations to improve the genetic status of the Nalibokski micro population of the European bison. This annex provides in greater detail the justification for these outputs, as well as an action plan for implementation.

The European bison *Bison bonasus* is included in the National Red Data Book of the Republic of Belarus (category III), the IUCN Red List (VU), Annex III of the Bern Convention, as well as in the National Red Data Books of Lithuania, Poland, Russia and Ukraine. The European bison lives and is kept in 33 countries with a total population 5,553 individuals (at the beginning of 2015). Of these, 3,543 bison are free-living animals. Belarus has made a significant contribution to revival, population increase and investigation of the European bison. There are 1,470 bison in Belarus (as of January-February 2016), or more than 25% of the world population. 97% of Belarussian bison live freely in natural environments (this is more than 40% of the world's free-living bison). In 2005, Belarus took second place in the world, after Poland, in the number of European bison, and in 2011 it took first place in the world in the number of free-living bison.

Belarus' program for the conservation of the European bison was developed and implemented through establishment of one or two central (core) free-living populations with the number of effective (breeding) animals close to 500 individuals, and satellite micro populations with the total number of at least 100 individuals, including at least 50 effective (breeding) individuals. Through this program ten free-living micro populations of the European bison were created in different regions of Belarus. While the current situation removes the threat of extinction of the European bison at the national and global level, it but does not ensure the long-term conservation of the species.

One of the problems is that the low genetic diversity of the European bison leads to reduction of adaptation potential of the existing populations. Therefore, well-founded fears arise in regard to the possibility of survival of separate micro populations in Belarus, including the Nalibokski micro population.

Another problem is the lack of necessary amount of fodder for free-living bison throughout the year. The deficiency of natural foraging base and limited amount of pastures with highly productive meadows lead to damage caused by bison on agriculture and forestry lands, and creating conflicts at local level.

Improvement of the foraging base by means of creation and maintenance of high productivity of natural meadows in Nalibokski reserve, as well as raising the genetic diversity of bison will ensure the long-term survivability and resilience of the Nalibokski free-living micro population.

Current status of the Nalibokski micro population of European bison

In 1994, 15 bison were moved from Belovezhskaya Puscha to the territory of the Nalibokski Puscha under the National Program for European Bison Conservation. This was the beginning of a new free-living European bison micro population in central Belarus. Currently, the size of the European bison micro population living on the territory of the State Nature Conservation Enterprise "RLZ Nalibokski" is 85 animals. Over 22 years of its existence, the size of the Nalibokski micro population has increased by 5.7 times and amounts to 2.3% of the world's free-living bison and 6% of the overall number of bison in Belarus. The Nalibokski micro population is characterized by stable population growth with predicted slowdown of its development. The population growth (average 8.8% per year) has general positive dynamics with a tendency to decline (figure 1).

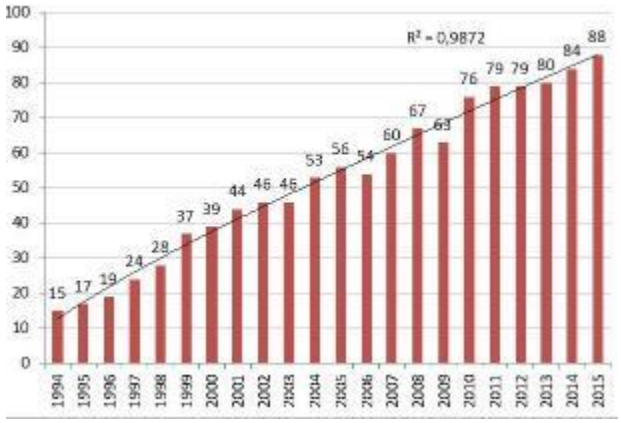


Figure 1:The growth (individuals) of the Nalibokski micro population of the European bison

The birth rate (average 14.5% per year) of the Nalibokski micro population of the European bison also has the general tendency to decline (figure 2).

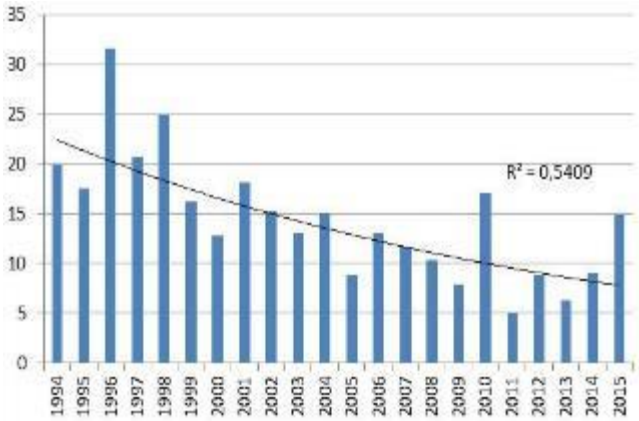


Figure 2: The birth rate (%) of the Nalibokski micro population of the European bison

Threats to the Nalibokski micro population

The main threat to further existence of the Nalibokski free-living micro population of the European bison is deterioration of life support conditions for animals in their habitats with continuous declines in the resilience of the entire micro population.

Deterioration of the foraging base

A key factor in the successful formation of the Nalibokski micro population was the abundance of fodder at the beginning development stage. The ameliorative system "Tyakovo" (500 ha), which was present among the forest tracts of the Nalibokski reserve, provided meadows with perennial grasses. Due to regular mowing the meadows were highly productive and rich in reserves of natural food, crucial for support of the micro population. Natural hay fields were actively visited by bison and other herbivorous wild animals. However, a progressive degradation of meadows has been observed in recent years due to the cessation of use of meadows for haymaking and abandonment of drainage canals. Open meadows are overgrown with shrubs. Accumulation of old grass causes decline of grass productivity. In addition, the meadows are getting waterlogged in many places as a result of beavers' activity, which leads to radical change of vegetation.

Deterioration of natural foraging conditions for bison is observed throughout the territory of the Nalibokski Reserve over the last 10 years. Mowing and grazing have stopped on most of the floodplain meadows of small rivers, and this has led to overgrowth with shrubs and trees. Degradation of those meadow areas has caused a sharp deterioration of the natural foraging base for bison.

As a result of fodder deficit, bison have started to feed on agricultural lands and cause significant damage to agricultural crops, which is the reason of constant conflicts with local farmers and agricultural organizations. Lack of fodder has led to division of the main herd (the core of the micro population) into two isolated groups with their subsequent relocation from the main habitat (ameliorative system "Tyakovo") to the periphery of the Nalibokski Reserve and even outside.

Thus, due to degradation of natural foraging grounds, spatial redistribution of bison has taken place accompanied by their relocation from forests of the Nalibokski Puscha to agricultural lands. Sustainable existence of the Nalibokski population is possible only under conditions of restoration of natural foraging grounds by means of creation of a complex mosaic of highly productive meadows among forest tracts of the Nalibokski Reserve.

The low degree of genetic diversity

The modern population of the European bison was recovered from 12 animals. The existing inbreeding has led to manifestation of negative features in the phenotype and decreased immune system function, which increases the susceptibility of animals to different diseases and reduces the population vitality.

Genetic diversity is necessary to ensure the ability of the population to adapt to environmental changes. Only animals with definite alleles or combination of alleles could have qualities necessary for survival and reproduction in new conditions. Frequency of separate alleles inside a population could vary from frequent to very rare. In small populations, the frequency of alleles may vary from one generation to the next just because of accidents that take place during crossbreeding and survival of offspring. This process is known as genetic drift. All European bison micro populations in Belarus are reproductively isolated from each other. Under such conditions genetic problems escalate even more, leading to the loss of genetic diversity, inbreeding and gene drift. Over a period of 30 years, no works have been conducted in Belarus on European bison blood refreshing, including for the Nalibokski micro population. Results of genetic study are needed to conduct a scientific-based exchange of genetically valuable animals between micro populations.

Taking a long-term perspective, the low degree of European bison genetic diversity in the world, in Belarus, and particularly in the Nalibokski micro population, puts the existence of the European bison under the threat.

Measures and achievement indicators

The main aim of this project's activity is to test pilot measures for creation of conditions for conservation of the European bison in natural habitats with minimal human intervention. The example of the Nalibokski micro population will demonstrate how to restore and increase the productivity of natural foraging grounds, which, in turn, will ensure preservation of a stable population size and structure, uniform distribution of animals throughout the forest, prevent conflicts with local people, and ensure formation of physiologically healthy and genetically enriched animals of the optimal species' phenotype. To preserve intrapopulation and territorial connections, it is also necessary to implement measures on additional feeding of bison (foraging fields, foraging plots). Sowing, selection of plant cultures and mowing should be regulated in such a manner that bison are provided with valid green forage starting from the second half of summer till the late autumn, as well as in early spring, i.e. to establish so called "green conveyor" specific pastures.

To determine the possibility of increasing the genetic diversity with subsequent strengthening of the vitality, it is necessary to conduct molecular-genetic investigations. These investigations should include individual identification of animals (passport system), which will enable the assessment of the genetic potential of the Nalibokski micro population of the European bison. If the qualified expert conclusion about the possibility of increasing the genetic heterogeneity, reduction of the inbreeding and genetic recovery of animals is positive, schemes of crossbreeding of bison from different micro populations

should be developed, and works on exchange of genetic material should be done, including the introduction of new animals.

Implementation of planned measures will allow formation of viable Nalibokski micro population of the European bison as a component of Belarussian and global population of the species. Indicators of the effectiveness of these measures are: indexes of reproduction and survival (mortality), changes in spatial distribution, and results of genetic study of the population.

Action plan on management of the European bison's micro population

Measure	Responsible organizations
Activity 1.1.1 Creation of the mosaic structure and improvement of foraging grounds in habitats of the Nalibokski micro population of the European bison -	
(i) Development of a scientific justification for the improvement of foraging conditions for the European bison at an area of 490 ha (the area "Tyakovo", and other plots)	Scientific-Practical Center for Bioresources of the National Academy of Sciences of Belarus
(ii) Development of the engineering documentation on restoration of the natural foraging grounds of the European bison (shrubs removal, hydrological regime optimization, reseeding, etc.)	UNDP, according to tender
(iii) Implementation of the engineering activities on restoration of the natural foraging grounds of the European bison	UNDP, according to tender
(iv) Creation of feeding fields and plots to provide Nalibokski micro population with additional forage	RLZ ”Nalibokski”
(v) Maintenance of foraging grounds in highly productive state (mowing, grass seeding, etc.)	RLZ ”Nalibokski”
Activity 1.1.2 Procurement of the technique and equipment for sustainable use and maintenance of foraging grounds, as well as for subsequent monitoring of efficiency of the project's measures.	
Rotary mower machine	UNDP
Mulcher	UNDP
Press-picking machine	UNDP
Trailer for transportation of rolls	UNDP
Tedder	UNDP
Camera traps (10)	UNDP
Web cameras (2)	UNDP
Activity 1.1.3 Establishment of sustainable ecological tourism based on observation of bison and other wild animals at Nalibokski Puscha	
(i) Development of scientific justification for establishment of the sustainable ecological tourism, based on observation of bison and other wild animals of Nalibokski Puscha	Scientific-Practical Center for Bioresources of the National Academy of Sciences of Belarus
(ii) Arrangement of one ecological trail and construction of at least 3 lookout towers for observation of wild animals	RLZ "Nalibokski"
(iii) Construction of lookout tower and show cages for demonstration of bison and other wild animals	RLZ "Nalibokski"
Activity 3.3.1 Assessment of genetic diversity and increasing the vitality of the European bison's Nalibokski micro population	
(i) Assessment of genetic potential, based on the molecular-genetic investigations, individual identification of bison (passport system)	Scientific-Practical Center for Bioresources of the National Academy of Sciences of Belarus
(ii) Genetic recovery of the European bison's Nalibokski micro population and monitoring of implemented measures (development of crossbreeding schemes, works on exchange of genetic material, including introduction of new animals, assessment of changes in genetic potential).	Scientific-Practical Center for Bioresources of the National Academy of Sciences of Belarus
Activity 3.3.2 Assessment and monitoring of the efficiency of implemented measures	

Measure	Responsible organizations
(i) Assessment of the efficiency of measures on improvement of foraging conditions (spatial distribution, frequency of visits to feeding fields, agricultural fields, etc.).	Scientific-Practical Center for Bioresources of the National Academy of Sciences of Belarus
(ii) Assessment of economic efficiency of ecotourism development	Scientific-Practical Center for Bioresources of the National Academy of Sciences of Belarus
(iii) Dissemination of the project's experience in optimization of foraging conditions for populations of the European bison.	RLZ "Nalibokski"

ANNEX 5: JUSTIFICATION AND ACTION PLAN FOR MODIFIED FOREST MANAGEMENT PARADIGM (OUTPUT 2.1)

Output 2.1 of the project focuses on changing the paradigm of forest management in areas that lie outside PAs yet harbor internationally important biodiversity; these areas extend over approximately 150,000 ha. In these areas, biodiversity-important forests will be identified and mapped; forest management plans will be updated with inclusion of biodiversity-conservation requirements; species-focused forest management activities will be launched (e.g., change of logging regimes, change of timing of vehicle and human passage, promotion of mosaic reforestation, etc.); and foresters will be trained in maintaining and enforcing the protection regimes at these sites. This annex provides in greater detail the justification for this output, as well as an action plan for implementation.

Old-growth forests that have only minimally been transformed by human activities play an important role in conserving biodiversity and ecosystem services. At the same time, these forests are also the most valuable as a timber source, and this poses a serious threat to the habitat of many plant and animal species. Currently, mature and over mature stands in Belarus occupy 12.5% of the national territory (about 990 thousand ha), and only 5% of them are broad-leaved forests.

Until 2016, particularly valuable forests, including old growth forests, were protected according to Belarus' nature conservation and forest legislation by means of designation of these territories as "specially protected plots". These areas constituted 1,163.1 thousand ha. In 2016, however, several amendments were made to the Forest Code in order to harmonize the forest and nature conservation legislation, as well as to meet the requirements of international conventions. As a result of these amendments, the concept of "specially protected plots" has been abolished, and forests designated as such are to be distributed to other categories of protected forests: nature conservation forests (habitats of protected species, rare biotopes, and forests on protected areas), protective forests, and recreational forests. The 2016 amendments also put into law the need for Forestries to review their forest management plan together with researchers should it be identified that there are rare biotopes within the forests they manage (whether protective forests or not).

Only a small share of forests that were classified as "specially protected plots" (about 128 thousand ha) will be automatically transferred to the nature conservation forest category, and changes in the legislation will not lead to changes in the forestry regime on these areas. To provide a new designation to the rest of the particularly valuable forests that are not transferred to the nature conservation category, a significant amount of time will be needed. Similarly, to improve bylaws and train specialists will also take time.

In 2014 Belarus ratified the Bern Convention on the Conservation of European Wildlife and Natural Habitats. As a result, the concept of "rare biotopes" appeared in nature conservation legislation and the procedures for their identification and transfer for protection were developed. Introduction of the concept of "rare biotopes" in nature conservation legislation is only the first step in securing biodiversity conservation at biotope level. Assignment of particularly valuable plots as "rare biotopes" requires their inventory by specialists, preparation of protection documents and introduction of all necessary procedures and results into forest management plans.

Planning and implementation of forest management activities in most forestry enterprises is usually carried out under conditions of lack or absence of information about distribution of protected species and rare biotopes needing special protection. Typically, only formerly known data on location of habitats of Red Data Book animal and plant species are considered by forestry enterprises during forest management planning. As a result, rare biotopes subject to special protection according to the Bern Convention and national legislation can be subject to cutting and other forestry activities. The main reasons that rare biotopes are not given special consideration in forest management plans are: the lack of a system for collection and analysis of information on habitats of globally threatened species and location of rare

biotopes, insufficient knowledge about identification criteria, and low awareness about the value of rare biotopes.

To address these shortcomings, Output 2.1 of the project will make an inventory, prepare passports and protection obligations, and transfer forest biotopes subject to special protection (at least 150,000 ha) to land users for protection and sustainable use. The project will create a model of how to bring together foresters and researchers to follow the new Forest Code by (1) identifying the biotopes, (2) describe them, (3) create conservation/ protection measures, and (4) control implementation of measures and ecological success. If such pilot examples exist, then whether the rare biotopes are within forests of protection or non-protection categories, once identified, the biotopes will be protected, and the project's model will be replicated using the new Forest Code as the legal basis.

Implementation of the pilot projects on integration of the management system for rare and typical biotopes, subject to special protection, into the forest management plans is planned on two territories – Diatlovski Forestry in 2017-2018 and Stolinski Forestry in 2018-2019 (see Map 1; red areas). The pilot projects envisage:

inventory and development of measures for management of rare biotopes

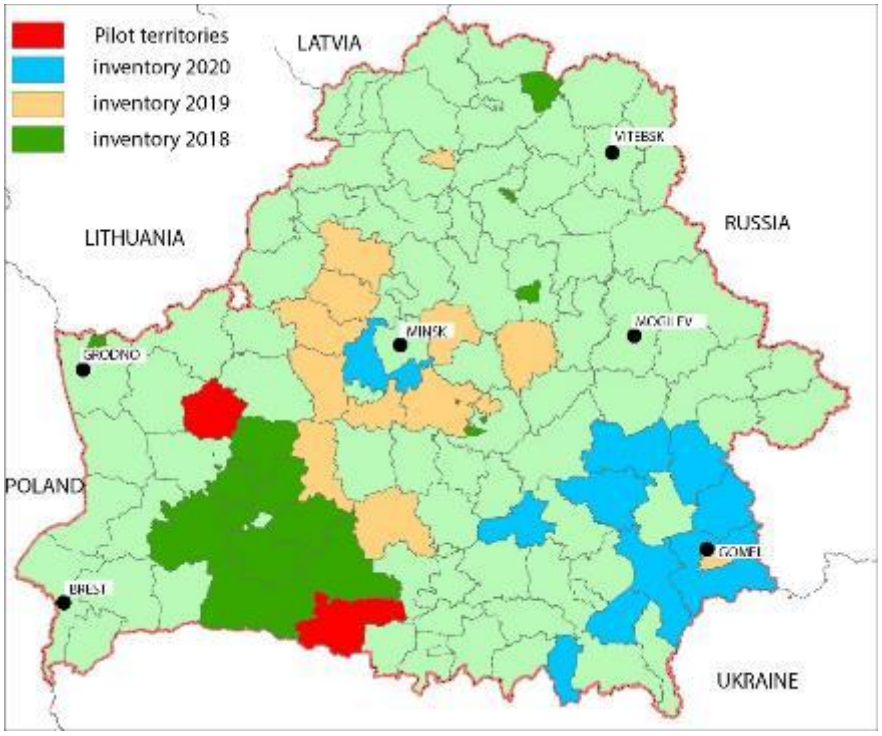
creation of information, research and monitoring infrastructure in and around the rare biotopes

development of a model of an additional informational layer for the forest management database and layout of cartographic database to enter the information about rare and typical biotopes

field training for foresters in identification of rare biotopes

preparation of demonstrational materials (posters, booklets, etc)

Map 1: Location of pilot territories for Output 2.1



Given limited resources, the strategy is to focus intensively on these two pilot territories. Project resource will focus on the entire spectrum of biotope identification, management, research, monitoring,

and actual implementation of conservation measures within these two most rare Forestries. However, recognizing that the experience also needs to be rapidly replicated at other Forestries, 38 additional Forestries (see Map 1; green, orange and blue areas) will also be included in all training sessions. However, the actual implementation of conservation measures will be undertaken by the Forestries using their own budgets; the project will oversee and provide technical support. Inventory works will be implemented simultaneously with basic forest management planning on the territory of 38 forestry enterprises (15 in 2018, 13 in 2019 and 10 in 2020), which will facilitate the inclusion of the results of the biodiversity inventory into forest management plans at minimal expense. Thus, a total of 40 Forestries are to be influenced by the project (Map 1 depicts the location of forestry enterprises). These territories cover all geobotanical subzones of Belarus.

These activities will enable forestry enterprises to implement an array of ecological requirements under the international certification system. GIS technologies and modern satellite images will be used for the inventory of biotopes. Inventory of rare biotopes will facilitate their protection and sustainable use on all lands of the Forest Fund, as well as make it possible to integrate methods of their protection into forest management plans, and raise awareness of foresters.

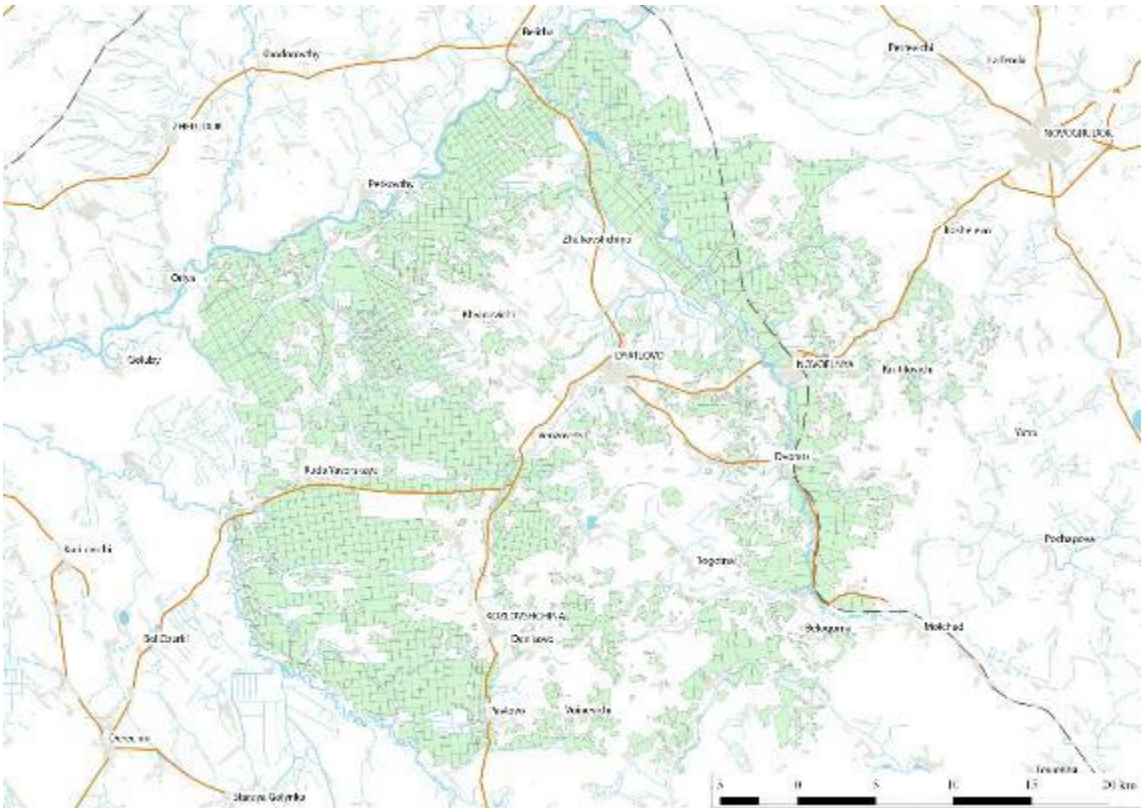
Description of Diatlovski Forestry

The Diatlovski Forestry is a part of the Grodnenski GPLHO and is situated in the south-eastern part of the Grodno region on the territory of Diatlovski, Slonimski, Lidski, Novogrudski and Schuchinski administrative districts. The extension of the Forestry's territory from north to south is 46 km, and from west to east is 51 km. A well-developed network of roads allows access to almost all forest quarters by car, including waterlogged parts. The forest falls under the subzone of hornbeam-oak-dark coniferous forests, Neman-Predpolesie district, Volkovyssko-Novogrudski geobotanical region. The area of the Forestry is 82.7 thousand ha (Map 2).

The composition of forests of the Diatlovski Forestry is as follows: pine (72%), birch (9.0%), black alder (8.8%), spruce (7.5%), and oak (1.2%). Plantations of growth classes I and II prevail and cover 76.9% of forested lands in the forestry. Class II plantations are represented by pine and oak. Plantations of V-Va growth classes cover 209 ha (0.2%) and are represented by pine and birch tree stands on raised bogs.

A part of the Republican landscape reserve "Lipichianskaya Puscha" (6,088 ha) and a hydrological reserve of local importance "Trostianka-Morgal" (486.4 ha) are situated on the territory of the Diatlovski Forestry. The landscape reserve "Lipichianskaya Puscha" was established for the conservation of unique natural landscape in its natural state with populations of rare and threatened species of plants and animals, for the protection of rare forest biocenoses, as well as complex of meadows, oxbows, ancient dunes in floodplains and valleys of rivers Neman and Schara.

Map 2 – The scheme of the Diatlovski Forestry



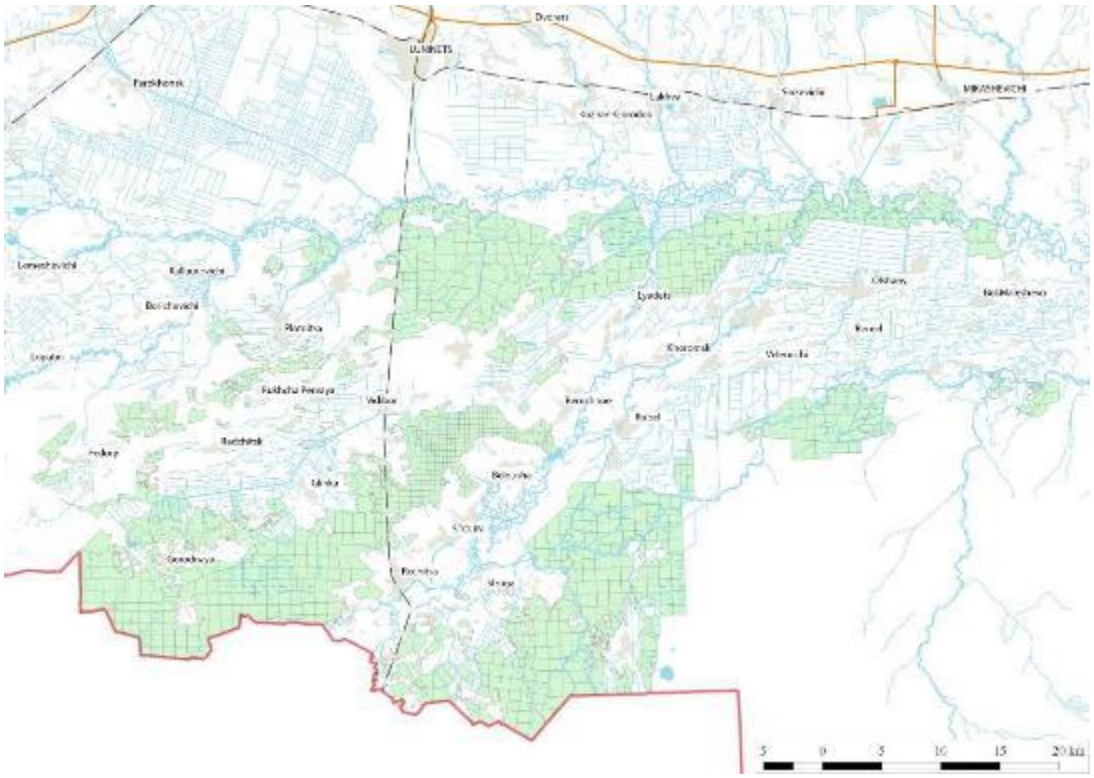
Description of Stolinski Forestry

Stolinski Forestry (the second pilot territory) is situated in the south of Belarus at the border with Ukraine (Map 3). The total area is 78.8 thousand ha. The notable feature of the territory is the presence of several large wetland reserves: Republican landscape reserve "Middle Pripyat" (11,084 ha), located in the valley of the Pripyat River; Republican landscape reserve "Olmany Mires"; reserve "Morochno" (5,283.0 ha), including the oldest raised bog of Belarus; Republican landscape reserve "Prostyr" (3,440 ha), representing the large fen floodplain mire in the interfluve of the Pripyat and Prostyr rivers. In addition, the territory of the forestry comprises two more small protected areas: Republican biological reserve "Tyrvovichi" (1391 ha) and biological reserve of local importance "Stupskoe" (655 ha).

The high waterlogging of the territory determines the formational structure of its forests. Pine forests dominate (40%), a fourth of which is swamp forests. Waterlogged black alder forests cover 28.3% and are concentrated mainly in the floodplain of the Pripyat River and its tributaries. More than 8% is occupied by oak woods and 3.6% by ash stands, half of which are floodplain forests. Willow thickets are widespread in the rivers' floodplains; many of them are extremely rare biotopes. Small plots are occupied by hornbeam, aspen, maple stands. There are small areas of spruce forest that are outside their southern border of the distribution range here.

Wide scale drainage amelioration was conducted on the adjacent agricultural fields, which led to formation of amelioration derivative forest types on adjacent areas. In addition, there is very high demand for small-scale wood in the region, which is used commercially by local people for construction and heating of glasshouses for vegetables growing.

Map 3 – The scheme of location of the Stolinski Forestry



Action plan for the implementation of Output 2.1

Measure	Responsible organizations
2.1.1. Harmonization of the forest and nature conservation legislation	Ministry of Forestry, Ministry of Nature Resources and Environmental Protection
2.1.2. Inventory, preparation of passports and protection obligations and transfer of forest biotopes subject to special protection (at least 150,000 ha) to land users for protection and sustainable use.	Institute of the Experimental Botany of the National Academy of Sciences of Belarus (with participation of the Institute of Forest of the NAS, universities), BelGosLes, Ministry of Nature Resources and Environmental Protection
2.1.3. The project activity on integration of the management system for rare and typical biotopes, subject to special protection, into the forest management plans in 2 pilot forestries. 2.1.3.1. Inventory and development of measures for management of rare biotopes. 2.1.3.2. Equipment of demonstration reference objects of rare biotopes. 2.1.3.3. Development of model of additional informational block for the forest management database and layout of cartographic database to enter the information about rare and typical biotopes 2.1.3.4. Development and update of forest management materials with maps of rare biotopes, vegetation, threats, succession status with use of GIS technologies. 2.1.3.5. Field trainings for foresters in identification of rare biotopes.	Institute of the Experimental Botany of the National Academy of Sciences, BelGosLes

Measure	Responsible organizations
2.1.3.6. Preparation of demonstrational materials (posters, booklets, etc) 2.1.3.7. Training of workers, developing forest management plans, in identification and conservation (management) of rare and typical biotopes, subject to special protection.	

ANNEX 6: JUSTIFICATION AND ACTION PLAN FOR PEATLAND RESTORATION (OUTPUT 2.2)

Output 2.2 of the project focuses on preventing degradation of waterlogged forests through a complex inventory and development of decision-making mechanism for management of 260,000 ha of drained and degraded waterlogged forests throughout the country. This annex provides in greater detail the justification for this output, as well as an action plan for implementation.

One of the significant unsolved problems of forestry enterprises is the presence of forest mires that were inefficiently drained by forest hydro amelioration, as well as the transfer of extracted peatlands to forestry enterprises. In the 1960s to 1980s, hydro-technical amelioration (drainage) of 304,000 hectares of forest mires was conducted with the aim to increase productivity of forests; in addition, more than 120,000 ha of extracted peatlands were transferred to the jurisdiction of forestry. The desired forest productivity benefit of forest hydro amelioration has been reached on only 43% of the total area of drained mires; increase of timber on the rest of the drained forest area is absent or insignificant. About 9% of the drained area fell on raised bogs, where the tangible positive effect of raising forest productivity by means of drainage is absent. There is no expected timber increase on inefficiently drained and extracted peatlands. In spite of this, peatlands remain in the drained state. Disruption of the natural hydrological regime of mires leads to decline of water reserves, reduced water purification capacity of mires, considerable increase of fire hazard (peat and forest fires), disruptions to hydrological regimes of rivers' sources and rivers themselves, peat mineralization, reduced efficiency of alternative use (collection of berries, mushrooms, fishing, hunting), degradation of habitats of rare species and biotopes, etc. Disruption of hydrological regime is the prime cause of overgrowth of open fen mires with shrubs and reeds, and raised bogs with pine and birch.

To establish sustainable use of mire ecosystems and prevent peat fires, the project will conduct a complex inventory of forest amelioration systems (about 260,000 ha) and extracted peatlands (about 120,000 ha) transferred to forestry enterprises, to assess their efficiency for forestry and define ways for their sustainable use. A comparative evaluation will be conducted to assess the forest ecosystems' state before and after the drainage amelioration. On the basis of specially developed criteria, proposals will be elaborated for further use of drained forest ecosystems: reconstruction of drainage system to raise forest productivity, rehabilitation of inefficiently drained forest mires, regulation of water levels to prevent fires, etc. Under Output 2.2, the project will demonstrate rehabilitation of inefficiently drained mires at several forest amelioration systems, as well as regulation of water levels to prevent peat fires at effective forest amelioration systems. The total demonstration area is 12,456 ha. The positive experience of the project will be disseminated among other forestry enterprises through a number of seminars.

Action plan for implementation of Output 2.2

Measure	Responsible organizations
2.2.1. Assessment of ecological and economic efficiency of forest hydro amelioration systems (260,000 ha) and development of proposals for the ways of their use (reconstruction, retirement, rewetting).	Institute of the Experimental Botany of the National Academy of Sciences (NAS) of Belarus, Institute of Forest of the NAS, Scientific-Practical Centre for Bioresources of NAS, BelGiproLes
2.2.2. Preparation of scientific justifications for ecological rehabilitation of the forest hydro amelioration systems, reports on process of plots selection and task specifications for development of projects	Institute of the Experimental Botany of the National Academy of Sciences, Scientific-Practical Centre for Bioresources of NAS
2.2.3. Development and implementation of engineering projects on rewetting of the forest hydro amelioration systems (12,456 ha), further effective use of which in productive industrial forestry is impossible due to different reasons.	Belgiprovodchoz

Measure	Responsible organizations
2.2.5. Dissemination of the project's experience in the practical application of methods of ecological rehabilitation and reconstruction of forest hydro amelioration systems	

Description of pilot sites (12,456 ha)

This section describes in detail the pilot sites at which methods of sustainable use of disturbed peatlands are to be demonstrated. A note on how GHG calculations have been undertaken precedes the pilot site descriptions.

Each project site has a complex mosaic structure of different types of peatland biotopes (e.g. forested, meadow, bare peat, reed and carex marshes etc.) with different rates of GHG emission. For calculating the GHG balance, the GEST method[9] and data on biotopes (type of vegetation, area in ha) at project sites have been used.

The GEST contains coefficients of GHG emission for different types of vegetation on peatlands. For example for site PORECHSKI MOKH, the total area is 4,219 ha, which includes 421.9 ha of moist meadow (with CO2 emission of 12.6 t(CO2)ha-1 year-1 and CH4 emission of 0 t(CO2-eq)ha-1 year-1) and 3797.1 ha of very moist bog heath (with CO2 emission of 9 t(CO2-eq)ha-1 year-1 and CH4 emission of 0.7 t(CO2-eq)ha-1 year-1). Based on the areas and coefficients, the site will have emissions of 42 147.81 t(CO2) year-1 from peat mineralization. Additionally there is emission from fires equal to 15 469.64 t(CO2) year-1 (assuming bulk density 0.1g cm-3, C content 50%, fire frequency 10 years, burning area 10% of the dry peatland sites, burning depth 20cm). Also included is the fact that the site has tree vegetation (Betula & Pinus, age-cover -yield of trees was included) that will uptake about 9640.42 t(CO2) year -1 on average. So the **baseline scenario emission** for next 20 years = 42 147(peat mineralization) + 15 469.64 (fires) - 9640.42 (trees uptake) = 47.977 t(CO2) year-1.

After rewetting the vegetation will change. According to the GEST method we consider that vegetation at the PORECHSKI MOKH site will change to moderately wet Sphagnum hummocks (with CO2 emission of 0 t(CO2)ha-1 year-1 and CH4 emission of 0,7 t(CO2-eq)ha-1 year-1) and to wet Sphagnum lawn (with CO2 emission of 0 t(CO2)ha-1 year-1 and CH4 emission of 5,2 t(CO2-eq)ha-1 year-1). From these the emission from peat mineralization will be 16,243 t (CO2) year -1. In addition, the possibility of CH4 peak emission that should accrue at sites with fen peatland areas in first years after rewetting is also considered. For PORECHSKI MOKH we estimate it at 1006.23 t (CO2eq) year -1. The emission from fires after rewetting is considered to be 0 t (CO2) year -1. It is also assumed that all trees will die after rewetting and uptake of CO2 will be 0 t (CO2) year -1. (Note, however, that at other sites, pine trees are expected to survive partly.) Thus, the **project scenario emission** = 16243 (peat mineralization) + 1006.23 + 0 (fires) – 0 (trees uptake) =17249.38 t (CO2) year -1.

Pilot Site 1: PORECHSKI MOKH

Location of the degraded peatland on forested land (administrative district)	Minsk Region, Pukhovichi district, village Porechie
Name of the degraded peatland (if any)	Porechski Mokh (Cadastre number 890)
Area of the degraded peatland (hectares) which will be restored	4219 ha
Land owner / land user of the degraded peatland	The State Forestry Enterprise "Pukhovichi Forestry" Omelnianskoe division of the State Forestry Enterprise "Pukhovichi Forestry" (quarters 4 (partially), 5, 6, 9 (partially), 13

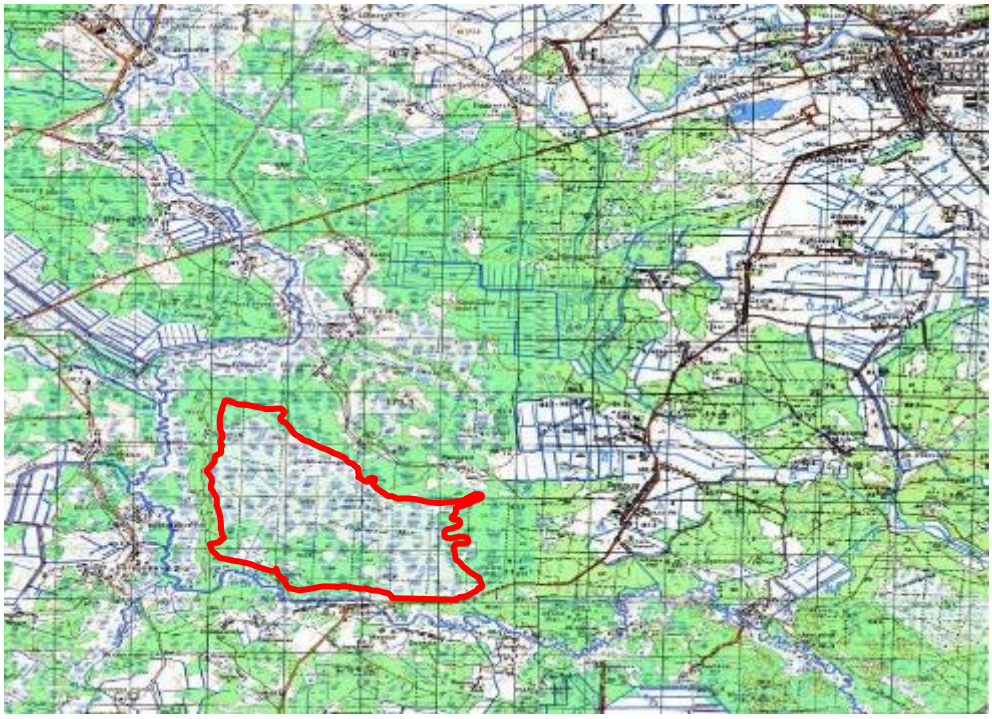
[9] Reference publications on the GEST method: Couwenberg J. et al. Assessing greenhouse gas emissions from peatlands using vegetation as a proxy. Hydrobiologia. 2011. T. 674. №. 1. C. 67-89; Tanneberger F., Wichtmann W. Carbon credits from peatland rewetting. Climate-biodiversity-land use. 2011.

	(partially),14 (partially), 15, 16, 17 (partially), 18 (partially), 24 (partially), 25-28, 29 (partially), 30 (partially), 31 (partially), 33 (partially), 35-40, 41 (partially), 42 (partially), 45 (partially), 46-52, 53 (partially), 56-60, 61 (partially), 62 (partially), 68-72, 73 (partially), 77 (partially), 82 (partially))		
Did the project obtain the consent from the land-user for the implementation of restoration?	Yes, there are appropriate letters from the land user ("Pukhovichi Forestry") and local government (Pukhovichi regional executive committee)		
Are there local communities/villagers/rural population that are found WITHIN or immediately outside the area? Select the appropriate response	No, there are no communities/villagers/rural population residing in or immediately outside the area where the restoration is planned		
BASELINE EMISSIONS Annual average volume of GHGs which will be emitted from the degraded peatland in the future (app. in the next 20 years) in case of NO RESTORATION done at the site. Document each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO2 equivalent per year per 1 hectare. unless otherwise specified):			
Annual mineralization of organic peat caused by low ground water table. Occurs annually at 4,219 ha on average (same as total area of the peatland or less). Fires. Occurs annually at up to 10% of the area on average (same as total area of the peatland or less) Sequestration in trees is 9640 t CO2 per year.	CO2 = 9.36 CH4 = 0.63 N2O = not considered Other GHGs (total from fires) = 15470 tons CO2 from fires per year.	Total GHG emissions from mineralization = 9.99*4,219 ha = 42,148 tons of CO2 annually Baseline emissions=42,148+15,470-9,640=47,977	
TOTAL annual baseline emissions from the peatland		= 47,977 (baseline level)	
EMISSIONS AFTER rewetting Annual average volume of GHGs which will be emitted from the peatland AFTER REWETTING. Forecast emissions from each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO2 equivalent per year per 1 hectare. unless otherwise specified):			
Annual mineralization of organic peat (if occurs) Will occur annually at 4,219 ha of the peatland on average	CO2 = 0 CH4 = 3.85 N2O = not considered Other GHGs (methane peak) = 1006	Total GHG emissions from mineralization = 3.85*4,219 ha = 16,243 tons of CO2 annually. Post-project emissions= 16,243+1,006=17,249	
TOTAL annual post-project emissions from the peatland		= 17249 after the end of the project	
Explain the scientific methods / emission factors applied in the forecasting of the post-project emissions (extrapolation from similar sites in Belarus – explain assumptions, literature – name which sources, IPCC, Carbon Benefits Project methodology, etc.).	GHG emissions are calculated using vegetation as a proxy for annual CO2 and CH4 emissions as outlined by Couwenberg et al. (2011). For the project scenario over 20 years it is assumed that the site becomes mainly covered with typical bog vegetation dominated by Sphagnum mosses. Development of hummocks and hollows and communities of dwarf shrubs and sphagnum mosses is expected in proportions 30% and 70% accordingly.		
TOTAL annual GHG reduction achieved by the project:	Total annual reduction = 47,977 (baseline level) – 17,249 (after the project implementation) + 0 (displacement) = 30,728		
PERMANENCE / FUTURE LAND USE MODEL	The peatland belongs to the category "subject to special or specific protection" according to the Strategy of Conservation and Rational (Sustainable) Use of Peatlands and the Scheme of		

Explain what mechanisms will be put in place by the project to ensure that the restored forested peatland will not be drained again or reverted to any other use that could nullify the achieved reductions in GHG emissions.	Peatlands Classification According to Ways of Use till 2030 (approved by the Resolution of the Council of Ministers of the Republic of Belarus № 1111 dated 30.12.2015). A part of the territory is under protection. The Republican Biological Reserve "Omelnianski" with an area of 2,011.57 ha was established by the Resolution of the Council of Ministers of the Republic of Belarus №1833 dated 27.12.2007. After rewetting (after implementation of the project) all the territory is planned to be included in the protected area Republican Biological Reserve "Omelnianski". Along with this forested lands within the area will be reclassified from the category of exploitation forest (2nd group) to the category of forest of special ecological value (1st group).
Biodiversity benefits Please state, which IUCN Red List species, occurring in the vicinity of the peatland, will benefit from the project, and how they will benefit. Please provide any other details on further benefits of this project for biodiversity from the point of view of landscape approach.	IUCN species 1: Pygmy damselfly Nehalennia speciosa The species depends on highly waterlogged transition mires. After the drainage the habitat area shrank to 700-800 ha. After the peatland restoration and stabilization of groundwater level the 2-fold expansion of the habitat area to 1500-1600 ha is expected.
	IUCN species 2: Meadow pipit Anthus pratensis Before the drainage this species inhabited the most part of the open mire. After the drainage and subsequent closure of the forest canopy the species remained at the area of about 800 ha. It is expected that after the mire restoration the habitat area will be at least 1400 ha.
	IUCN species 3: Formica uralensis Before the drainage this species inhabited almost all raised bogs and transition mires of the project territory. Currently the species inhabits the area of about 700-800 ha. After the mire restoration the 2-fold expansion of the habitat area to 1500 ha is expected.
	The priority tasks of the ecological rehabilitation of the peatland are: conservation and restoration of wetlands and their biological resources, as well as valuable biological natural objects - communities and separate populations of rare, threatened and economically useful animal and plant species - by means of stabilization of the hydrological regime, favorable for renewal of mire and peat forming processes. The rewetting will improve water supply of the Talka River, originating from this peatland.
Monitoring of biodiversity Explain which institution and through what methods will be implemented monitoring of the state of biodiversity at the peatland after the project	Monitoring of biodiversity will be conducted by the Institute of Experimental Botany by means of tracking the process of vegetation restoration before and after rewetting of the peatland (by the remote sensing method). The main monitoring method will be typification of vegetation, assessment of state of main vegetation types and separate flora's objects, prediction of succession processes on the territory (detailed description of the monitoring methods is done in publication: Methods of flora monitoring under the National Monitoring System of Environment of the Republic of Belarus / edited by A.V. Pugachevski. – Institute of Experimental Botany of National Academy of Sciences of Belarus. – Minsk: Law and economy, 2011. – 165 p.).
Land degradation benefits Please quantify the positive impact that the project will have on the state of land degradation in the peatland and surrounding landscape.	Ecological rehabilitation is aimed at restoration of typical mire water regime, vegetation cover and peat formation process.
	Restoration of vegetation cover at 2200 ha
	Arrested degradation of chemical, biological and physical soil properties at 4219 ha.

	Prevention of formation of fire hazard areas and barrens, reduction of probability of repeated fires. The probability of fires will be reduced, especially in areas of high or very high fire danger (total area of such plots is about 20% of the peatland's territory), which will reduce potential expenses for firefighting and fire preventive measures.
	Prevented wind erosion – no wind erosion
	Raised ground water table at 3000 ha
	Restored wetland functions at 1200 ha
	Other
State any negative environmental or socio-economic effects that the project might bring, and ways to mitigate them in the project	No negative environmental or socio-economic effects are expected.
Benefits for local people Please quantify in monitoring terms economic benefits for local people (number of people, what economic activities – hunting, mushrooms, cranberries), % increase in their income	Restoration of the hydrological regime in the project area will not have negative ecological and social effects, and it does not conflict with the interests of the local people. The main economic benefit for local people is an end to peat fires that were responsible for large amounts of smoke pollution in the nearby villages. Local people gather berries, mushrooms, medicinal plants on the territory. Restoration of the mire's hydrological regime will increase the natural potential of this area, will lead to restoration of the productivity and initial area of cranberry ground, formation of hunting grounds, which can be used for ecotourism and hunting. Restoration of the hydrological regime will improve biocoenotic capacity of the area, firstly for such important game species as elk, wild boar, black grouse, capercaillie, which will have positive effect for hunting inside the area, as well as in its surroundings. About 500 local people will benefit from increased amount of cranberries for harvesting. Average increase in the income from cranberry gathering per one family will be more than 50%.
Involvement of women in the project and/or benefits for women from the project	Cranberry gathering and selling is an important source of supplemental revenue for women in many Belarusian villages. More than 200 women from the nearby villages will be able to receive supplemental income after restoration of the natural cranberry reserves.

Porechski Mokh on topographic map



Porechski Mokh – satellite image

Pilot Site 2: ZHADA

Location of the degraded peatland on forested land (administrative district)	The area is located at the border of the Miory and Sharkovschina administrative districts of the Vitebsk region, 13 km south-west from the Disna town.
Name of the degraded peatland (if any)	Zhada
Area of the degraded peatland (hectares) which will be restored	5382 ha
Land owner / land user of the degraded peatland	The State Forestry Enterprise "Disnenski Forestry" Disnenskoe division (quarter 115), Luzhskoe division (quarters 2-6, 9-11, 16-21, 24-29, 31-36, 40-44, 56-58) and Yaznenskoe division (quarters 1, 2-26) of the State Forestry Enterprise "Disnenski Forestry".
Did the project obtain the consent from the land-user for the implementation of restoration?	Yes, there are appropriate letters from the land user (the State Forestry Enterprise "Disnenski Forestry") and local governments (Miory and Sharkovschina regional executive committees)
Are there local communities/villagers/rural population that are found WITHIN or immediately outside the area? Select the appropriate response	No, there are no communities/villagers/rural population residing in or immediately outside the area where the restoration is planned

BASELINE EMISSIONS

Annual average volume of GHGs which will be emitted from the degraded peatland in the future (app. in the next 20 years) in case of NO RESTORATION done at the site. Document each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO_2 equivalent per year per 1 hectare. unless otherwise specified):

Annual mineralization of organic peat caused by low ground water table. Occurs annually at 5,382 ha on average (same as total area of the peatland or less). Fires. Occurs annually at up to 10% of the area on average (same as total area of the peatland or less) Sequestration in trees is 15860 t CO_2 per year.	CO_2 = 9.0 CH_4 = 0.6 N_2O = not considered Other GHGs (total from fires) = 19734 tons CO_2 from fires per year.	Total GHG emissions from mineralization = 9.06*5382 ha = 48744 tons of CO_2 annually. Baseline emissions=48,744+19,734-15,860=52,618
TOTAL annual baseline emissions from the peatland		= 52618 (baseline level)

EMISSIONS AFTER rewetting

<table>
<tr><td colspan="3">Annual average volume of GHGs which will be emitted from the peatland AFTER REWETTING. Forecast emissions from each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO2 equivalent per year per 1 hectare. unless otherwise specified):</td></tr>
<tr><td rowspan="4">Annual mineralization of organic peat (if occurs)

Will occur annually at 5382 ha of the peatland on average

Sequestration in trees is expected =15860 t CO2 per year.</td><td>CO2 = 3.78</td><td rowspan="4">Total GHG emissions from mineralization = 7.78*5382 ha = 41881 tons of CO2 annually.

Post-project emissions= 41,881-15,860=26,022</td></tr>
<tr><td>CH4 = 4.0</td></tr>
<tr><td>N2O = not considered</td></tr>
<tr><td>Other GHGs (specify which) = absent</td></tr>
<tr><td colspan="2">TOTAL annual post-project emissions from the peatland</td><td>= 26022 after the end of the project</td></tr>
<tr><td>Explain the scientific methods / emission factors applied in the forecasting of the post-project emissions (extrapolation from similar sites in Belarus – explain assumptions, literature – name which sources, IPCC, Carbon Benefits Project methodology, etc.).</td><td colspan="2">GHG emissions are calculated using vegetation as a proxy for annual CO2 and CH4 emissions as outlined by Couwenberg et al. (2011).

For the project scenario over 20 years it is assumed that the site becomes mainly covered with typical bog vegetation dominated by Sphagnum mosses.

The following ratio is expected:

Very wet mire with dwarf shrubs 50%

Ridge and hollow pattern (25/25%)</td></tr>
<tr><td>TOTAL annual GHG reduction achieved by the project:</td><td colspan="2">Total annual reduction = 52618 (baseline level) – 26022 (after the project implementation) + 0 (displacement) = 26596</td></tr>
<tr><td>PERMANENCE / FUTURE LAND USE MODEL

Explain what mechanisms will be put in place by the project to ensure that the restored forested peatland will not be drained again or reverted to any other use that could nullify the achieved reductions in GHG emissions.</td><td colspan="2">The peatland belongs to the category "subject to special or specific protection" according to the Strategy of Conservation and Rational (Sustainable) Use of Peatlands and the Scheme of Peatlands Classification According to Ways of Use till 2030 (approved by the Resolution of the Council of Ministers of the Republic of Belarus № 1111 dated 30.12.2015).

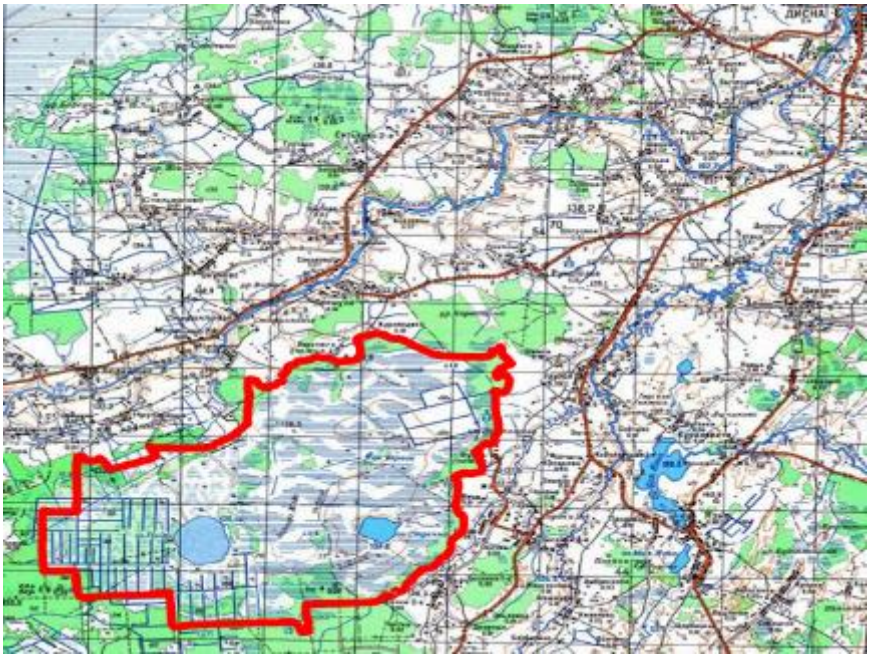
After rewetting (after implementation of the project) all the territory is planned to be included into the protected area Republican Wetland Reserve "Zhada". Along with this forested lands within the area will be reclassified from the category of exploitation forest (2nd group) to the category of forest of special ecological value (1st group).</td></tr>
<tr><td>Biodiversity benefits</td><td colspan="2">IUCN species 1: Eurasian curlew Numenius arquata

Before the drainage there was a stable population of the species in the site. After the drainage the species remains only in the central part of the site at area of about 600 ha, its population size is 4-6 pairs.</td></tr>
</table>

Please state, which IUCN Red List species, occurring in the vicinity of the peatland, will benefit from the project, and how they will benefit. Please provide any other details on further benefits of this project for biodiversity from the point of view of landscape approach.	It is expected that after raise of groundwater level the habitat area of the species will increase to 1000-1200 ha, the species population will be 8-12 pairs.
	IUCN species 2: Otter Lutra lutra. The population of the species on the most of the site's water courses is unstable due to absence of water regulating facilities. Within the project area the species constantly inhabits only lakes, non-aligned rivers and main canals. It is expected that stabilization of the water regime of the water courses will result in stabilization of the species population and its increase from 5-7 individuals to 10-12..
	IUCN species 3: Formica uralensis Before the drainage this species inhabited almost all raised bogs and transition mires of the project territory. Currently the species inhabits the area of about 1000-1200 ha. Increase of the habitat area to at least 2500 ha is expected after the mire rehabilitation.
	The priority tasks of the ecological rehabilitation of the peatland are: conservation and restoration of wetlands and their biological resources, as well as valuable biological natural objects - communities and separate populations of rare, threatened and economically useful animal and plant species - by means of stabilization of the hydrological regime, favorable for renewal of mire and peat forming processes. The rewetting will improve water supply of the Plavnia, Ilovka and Ulinets rivers, originating from this peatland.
Monitoring of biodiversity Explain which institution and through what methods will be implemented monitoring of the state of biodiversity at the peatland after the project	Monitoring of biodiversity will be conducted by the Institute of Experimental Botany by means of tracking the process of vegetation restoration before and after rewetting of the peatland (by the remote sensing method). The main monitoring method will be typification of vegetation, assessment of state of main vegetation types and separate flora's objects, prediction of succession processes on the territory (detailed description of the monitoring methods is done in publication: Methods of flora monitoring under the National Monitoring System of Environment of the Republic of Belarus / edited by A.V. Pugachevski. – Institute of Experimental Botany of National Academy of Sciences of Belarus. – Minsk: Law and economy, 2011. – 165 p.).
Land degradation benefits Please quantify the positive impact that the project will have on the state of land degradation in the peatland and surrounding landscape.	Ecological rehabilitation is aimed at restoration of typical mire water regime, vegetation cover and peat formation process.
	Restoration of vegetation cover at 5382 ha
	Arrested degradation of chemical, biological and physical soil properties at 5382 ha
	Prevented wind erosion – no wind erosion

	Prevention of formation of fire hazard areas and barrens, reduction of probability of repeated fires. The probability of fires will be reduced, especially in areas of high or very high fire danger (total area of such plots is about 35% of the peatland's territory), which will reduce potential expenses for firefighting and fire preventive measures.
	Raised ground water table and restored hydrological regime at 5382 ha
	Other
State any negative environmental or socio-economic effects that the project might bring, and ways to mitigate them in the project	No negative environmental or socio-economic effects are expected.
Benefits for local people Please quantify in monitoring terms economic benefits for local people (number of people, what economic activities – hunting, mushrooms, cranberries), % increase in their income	Restoration of the hydrological regime in the project area will not have negative ecological and social effects, and it does not conflict with the interests of the local people. The main economic benefit for local people is an end to peat fires that were responsible for large amounts of smoke pollution in the nearby villages. Local people gather berries, mushrooms, medicinal plants on the territory. Restoration of the mire's hydrological regime will increase the natural potential of this area, will lead to restoration of the productivity and initial area of cranberry ground, formation of hunting grounds, which can be used for ecotourism and hunting. Restoration of the hydrological regime will improve biocoenotic capacity of the area, firstly for such important game species as elk, wild boar, black grouse, capercaillie, which will have positive effect for hunting inside the area, as well as in its surroundings. About 500 local people will benefit from increased amount of cranberries for harvesting. Average increase in the income from cranberry gathering per one family will be more than 50%.
Involvement of women in the project and/or benefits for women from the project	Cranberry gathering and selling is an important source of supplemental revenue for women in many Belarusian villages. More than 200 women from the nearby villages will be able to receive supplemental income after restoration of the natural cranberry reserves.

Zhada on a topographic map



Zhada -- satellite image

Pilot Site 3: OSTROVO

Location of the degraded peatland on forested land (administrative district)	Smorgon administrative district of the Grodno region, village Ostrovo
Name of the degraded peatland (if any)	Ostrovo
Area of the degraded peatland (hectares) which will be restored	790 ha
Land owner / land user of the degraded peatland	The State Experiential Forestry Enterprise "Smorgonski experiential forestry" Trilesinskoe division of the "Smorgonski experiential forestry" (quarters 3 (partially), 27 (partially), 28, 29, 30, 31 (partially), 32 (partially), 35 (partially), 36 (partially)).
Did the project obtain the consent from the land-user for the implementation of restoration?	Yes, there are appropriate letters from the land user (The State Experiential Forestry Enterprise "Smorgonski experiential forestry") and local government (Smorgonski regional executive committee)
Are there local communities/villagers/rural population that are found WITHIN or immediately outside the area? Select the appropriate response	No, there are no communities/villagers/rural population residing in or immediately outside the area where the restoration is planned A Gardener's Association is located in the vicinity of the project territory (south-western part of the site). One of the requests that should be respected during rewetting is exclusion of flooding of adjacent areas.

BASELINE EMISSIONS

Annual average volume of GHGs which will be emitted from the degraded peatland in the future (app. in the next 20 years) in case of NO RESTORATION done at the site. Document each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO2 equivalent per year per 1 hectare. unless otherwise specified):

Annual mineralization of organic peat caused by low ground water table. Occurs annually at 790 ha on average (same as total area of the peatland or less). Fires. Occurs annually at up to 10% of the area on average (same as total area of the peatland or less) Sequestration in trees is 1627 t CO2 per year.	CO2 = 9.78 CH4 = 0.36 N2O = not considered Other GHGs (total from fires) = 2358 tons CO2 from fires per year.	Total GHG emissions from mineralization = 10.14*790 ha = 8011 tons of CO2 annually. Baseline emissions=8,011+2,358 -1,627=8,742
TOTAL annual baseline emissions from the peatland		= 8742 (baseline level)

EMISSIONS AFTER rewetting

<table>
<tr><td colspan="3">Annual average volume of GHGs which will be emitted from the peatland AFTER REWETTING. Forecast emissions from each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO2 equivalent per year per 1 hectare. unless otherwise specified):</td></tr>
<tr><td rowspan="4">Annual mineralization of organic peat (if occurs)

Will occur annually at 790 ha of the peatland on average

Sequestration in trees (Pinus survives) is expected=15.35 t CO2 per year.</td><td>CO2= 0</td><td rowspan="4">Total GHG emissions from mineralization = 5.06*790 ha = 3998 tons of CO2 annually.

Post-project emissions= 3,998-15.35=3,982</td></tr>
<tr><td>CH4 = 5.06</td></tr>
<tr><td>N2O = not considered</td></tr>
<tr><td>Other GHGs (specify which) = absent</td></tr>
<tr><td colspan="2">TOTAL annual post-project emissions from the peatland</td><td>= 3982 after the end of the project</td></tr>
<tr><td>Explain the scientific methods / emission factors applied in the forecasting of the post-project emissions (extrapolation from similar sites in Belarus – explain assumptions, literature – name which sources, IPCC, Carbon Benefits Project methodology, etc.).</td><td colspan="2">GHG emissions are calculated using vegetation as a proxy for annual CO2 and CH4 emissions as outlined by Couwenberg et al. (2011).

For the project scenario over 20 years it is assumed that the site becomes mainly covered with typical fen vegetation dominated by Sphagnum mosses.

Development of Sphagnum hummocks and hollows complex is expected with their ratio as following: lawn - 80%, hummocks and hollows - 10% each.</td></tr>
<tr><td>TOTAL annual GHG reduction achieved by the project:</td><td colspan="2">Total annual reduction = 8742 (baseline level) – 3982 (after the project implementation) + 0 (displacement) = 4760</td></tr>
<tr><td>PERMANENCE / FUTURE LAND USE MODEL

Explain what mechanisms will be put in place by the project to ensure that the restored forested peatland will not be drained again or reverted to any other use that could nullify the achieved reductions in GHG emissions.</td><td colspan="2">After rewetting (after implementation of the project) the most valuable biotopes will be assigned a category "rare" and will be taken under protection. Along with this a part of the site's exploitation forests (2nd group) will be reclassified to the category of forest of special ecological value (1st group). In this case any ameliorative works or forest cuttings will be legally restricted on this site. In the future the possibility of inclusion of the site into the Local Wetland Reserve "Ostrovo" will be considered.</td></tr>
<tr><td rowspan="2">Biodiversity benefits

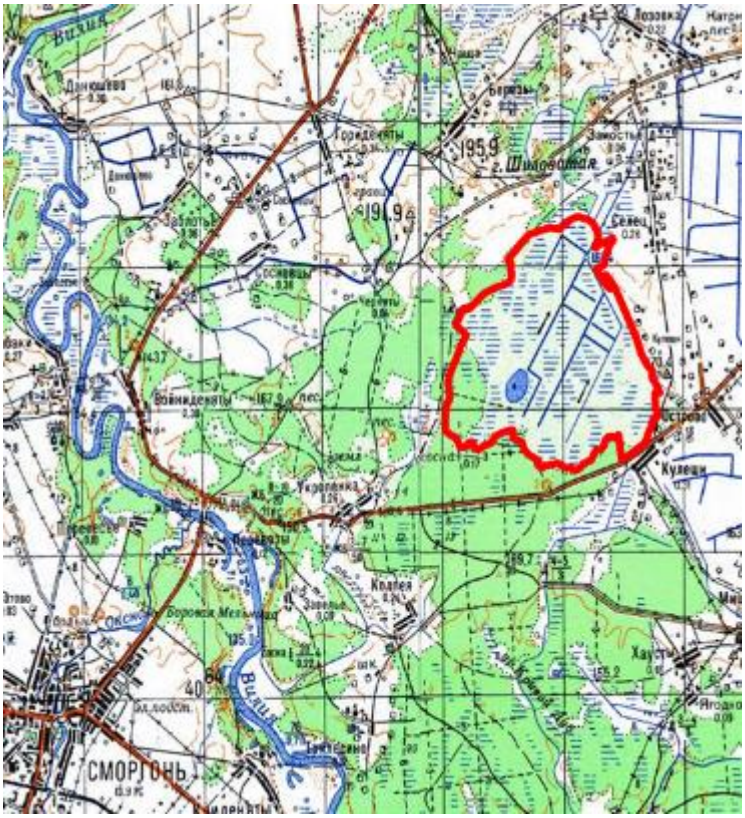
Please state, which IUCN Red List species, occurring in the vicinity of the peatland, will benefit from the project, and how they will benefit.</td><td colspan="2">IUCN species 1: Otter Lutra lutra

Occurrence of otter within the site is periodic due to unstable water level in canals. Formation of the constant grouping of the species (2-4 animals) is expected after rewetting.</td></tr>
<tr><td colspan="2">IUCN species 2: Formica uralensis</td></tr>
</table>

Please provide any other details on further benefits of this project for biodiversity from the point of view of landscape approach.	Before the drainage it was the common species inhabiting the whole mire. After the drainage it remained only on non-extracted part of the peatland at about 100 ha. Increase of the habitat area to at least 400-450 ha is expected.
	The priority tasks of the ecological rehabilitation of the peatland are: conservation and restoration of wetlands and their biological resources, as well as valuable biological natural objects - communities and separate populations of rare, threatened and economically useful animal and plant species - by means of stabilization of the hydrological regime, favorable for renewal of mire and peat forming processes.
Monitoring of biodiversity Explain which institution and through what methods will be implemented monitoring of the state of biodiversity at the peatland after the project	Monitoring of biodiversity will be conducted by the Institute of Experimental Botany by means of tracking the process of vegetation restoration before and after rewetting of the peatland (by the remote sensing method). The main monitoring method will be typification of vegetation, assessment of state of main vegetation types and separate flora's objects, prediction of succession processes on the territory (detailed description of the monitoring methods is done in publication: Methods of flora monitoring under the National Monitoring System of Environment of the Republic of Belarus / edited by A.V. Pugachevski. – Institute of Experimental Botany of National Academy of Sciences of Belarus. – Minsk: Law and economy, 2011. – 165 p.).
Land degradation benefits Please quantify the positive impact that the project will have on the state of land degradation in the peatland and surrounding landscape.	Ecological rehabilitation is aimed at restoration of typical mire water regime, vegetation cover and peat formation process.
	Restoration of vegetation cover at 790 ha
	Arrested degradation of chemical, biological and physical soil properties at 790 ha
	Prevented wind erosion – no wind erosion
	Prevention of formation of fire hazard areas and barrens, reduction of probability of repeated fires. The probability of fires will be reduced, especially in areas of high or very high fire danger (total area of such plots is about 75% of the peatland's territory), which will reduce potential expenses for firefighting and fire preventive measures.
	Raised ground water table and restored hydrological regime at 790 ha
	Other
State any negative environmental or socio-economic effects that the project might bring, and ways to mitigate them in the project	No negative environmental or socio-economic effects are expected.

Benefits for local people Please quantify in monitoring terms economic benefits for local people (number of people, what economic activities – hunting, mushrooms, cranberries), % increase in their income	Restoration of the hydrological regime in the project area will not have negative ecological and social effects, and it does not conflict with the interests of the local people. The main economic benefit for local people is an end to peat fires that were responsible for large amounts of smoke pollution in the nearby villages. Local people gather berries, mushrooms, medicinal plants on the territory. Restoration of the mire's hydrological regime will increase the natural potential of this area, will lead to restoration of the productivity and initial area of cranberry ground, formation of hunting grounds, which can be used for ecotourism and hunting. Restoration of the hydrological regime will improve biocoenotic capacity of the area, firstly for such important game species as elk, wild boar, black grouse, capercaillie, which will have positive effect for hunting inside the area, as well as in its surroundings. About 50 local people will benefit from increased amount of cranberries for harvesting. Average increase in the income from cranberry gathering per one family will be more than 50%.
Involvement of women in the project and/or benefits for women from the project	Cranberry gathering and selling is an important source of supplemental revenue for women in many Belarusian villages. More than 200 women from the nearby villages will be able to receive supplemental income after restoration of the natural cranberry reserves.

Ostrovo on a topographic map



Ostrovo -- satellite image

Pilot Site 4: BEREZOVIK

Location of the degraded peatland on forested land (administrative district)	Vileika administrative district, Minsk region
Name of the degraded peatland (if any)	Berezovik (Cadastre number 31*)
Area of the degraded peatland (hectares) which will be restored	1292 ha
Land owner / land user of the degraded peatland	The State Experiential Forestry Enterprise "Vileiski experiential forestry" Narochanskoe division of the "Vileiski experiential forestry" (quarters 1, 2, 3 (partially), 4 (partially), 5, 6, 7 (partially), 8 (partially), 9, 10, 11 (partially), 12 (partially), 13 (partially), 14, 15 (partially), 16 (partially), 24, 25 (partially)).
Did the project obtain the consent from the land-user for the implementation of restoration?	Yes, there are appropriate letters from the land user (The State Experiential Forestry Enterprise "Vileiski experiential forestry") and local government (Vileiski regional executive committee)
Are there local communities/villagers/rural population that are found WITHIN or immediately outside the area? Select the appropriate response	No, there are no communities/villagers/rural population residing in or immediately outside the area where the restoration is planned

BASELINE EMISSIONS

Annual average volume of GHGs which will be emitted from the degraded peatland in the future (app. in the next 20 years) in case of NO RESTORATION done at the site. Document each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO_2 equivalent per year per 1 hectare. unless otherwise specified):

Annual mineralization of organic peat caused by low ground water table. Occurs annually at 1292 ha on average (same as total area of the peatland or less). Fires. Occurs annually at up to 10% of the area on average (same as total area of the peatland or less) Sequestration in trees is 473 t CO_2 per year.	CO_2 = 10.23 CH_4 = 0.11 N_2O = not considered Other GHGs (total from fires) = 4737 tons CO_2 from fires per year.	Total GHG emissions from mineralization = 10.34*1292 ha = 13359 tons of CO_2 annually. Baseline emissions=13,359+4,737-473=17,623
TOTAL annual baseline emissions from the peatland		= 17623 (baseline level)

EMISSIONS AFTER rewetting

<table>
<tr><td colspan="3">Annual average volume of GHGs which will be emitted from the peatland AFTER REWETTING. Forecast emissions from each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO2 equivalent per year per 1 hectare. unless otherwise specified):</td></tr>
<tr><td rowspan="4">Annual mineralization of organic peat (if occurs)

Will occur annually at 1292 ha of the peatland on average</td><td>CO2 = 3.6</td><td rowspan="4">Total GHG emissions from mineralization = 7.6*1292 ha = 9819 tons of CO2 annually.</td></tr>
<tr><td>CH4 = 4</td></tr>
<tr><td>N2O = not considered</td></tr>
<tr><td>Other GHGs (specify which) = absent</td></tr>
<tr><td colspan="2">TOTAL annual post-project emissions from the peatland</td><td>= 9819 after the end of the project</td></tr>
<tr><td>Explain the scientific methods / emission factors applied in the forecasting of the post-project emissions (extrapolation from similar sites in Belarus – explain assumptions, literature – name which sources, IPCC, Carbon Benefits Project methodology, etc.).</td><td colspan="2">GHG emissions are calculated using vegetation as a proxy for annual CO2 and CH4 emissions as outlined by Couwenberg et al. (2011).

For the project scenario over 20 years it is assumed that the site becomes mainly covered with typical fen vegetation dominated by Sphagnum mosses.

Development of hummocks and hollows and dwarf shrub-Sphagnum communities is expected with proportion 60% and 40% accordingly.</td></tr>
<tr><td>TOTAL annual GHG reduction achieved by the project:</td><td colspan="2">Total annual reduction = 17623 (baseline level) – 9819 (after the project implementation) + 0 (displacement) = 7804</td></tr>
<tr><td>PERMANENCE / FUTURE LAND USE MODEL

Explain what mechanisms will be put in place by the project to ensure that the restored forested peatland will not be drained again or reverted to any other use that could nullify the achieved reductions in GHG emissions.</td><td colspan="2">After rewetting (after implementation of the project) the most valuable biotopes will be assigned a category "rare" and will be taken under protection. Along with this a part of the site's exploitation forests (2nd group) will be reclassified to the category of forest of special ecological value (1st group). In this case any ameliorative works or forest cuttings will be legally restricted on this site. Changes in forest use will be officially stated in the new forest management plan of the Vileiski experiential forestry enterprise, which is the owner of this site, as well as in the land management scheme of the district's administration, under which management this forest falls. In the future the possibility of inclusion of the site into the Local Biological Reserve will be considered.</td></tr>
<tr><td rowspan="2">Biodiversity benefits

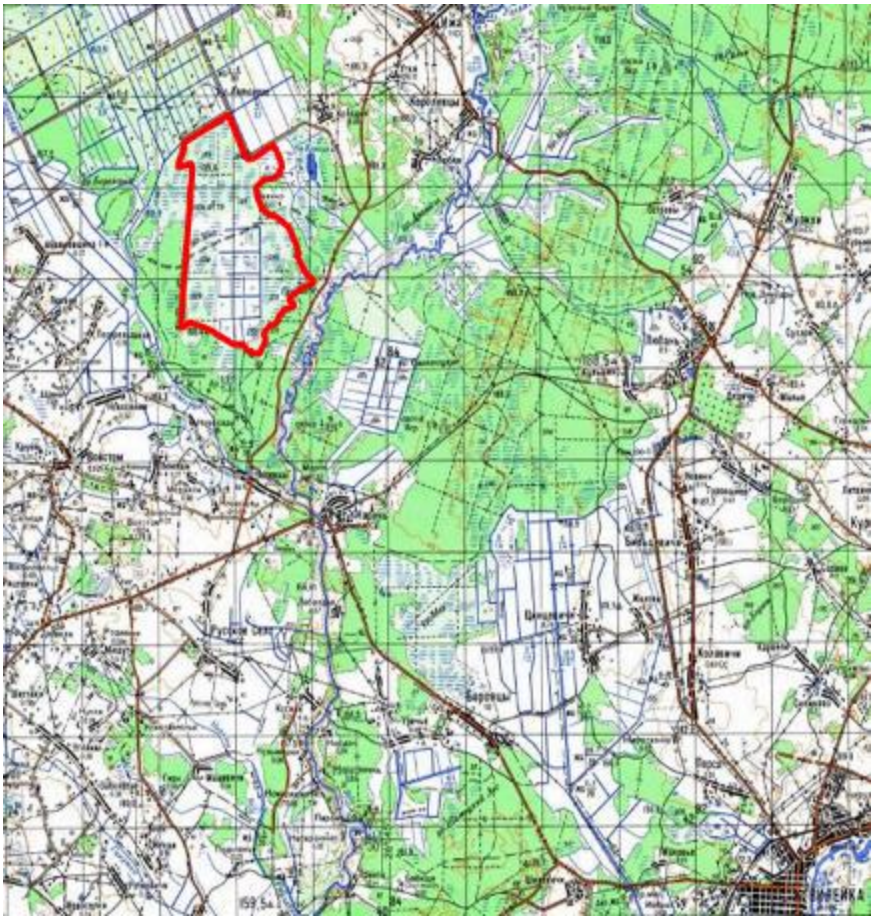
Please state, which IUCN Red List species, occurring in the vicinity of the peatland, will benefit from the project, and how they will benefit.</td><td colspan="2">IUCN species 1: Great snipe Gallinago media

Before the drainage a constant population of the species inhabited the mire. In recent years only single birds were registered in the north-eastern part of the mire. Recovery of the population to 5-10 pairs is expected after the restoration of the groundwater level.</td></tr>
<tr><td colspan="2">IUCN species 2: Meadow pipit Anthus pratensis</td></tr>
</table>

Please provide any other details on further benefits of this project for biodiversity from the point of view of landscape approach.	Before the drainage this species inhabited the most part of the open mire. After the drainage and subsequent closure of the forest canopy the species preserves at the area of about 200 ha. If measures for restoration of the hydrological regime will not be taken, the species will disappear from the site in the next 20-30 years. Stabilization of the population is expected after the restoration of the hydrological regime and the habitat area will increase to 500 ha.
	IUCN species 3: Great raft spider Dolomedes plantarius Formerly it was the common species of highly waterlogged fen and transition mires of the site. After the drainage the species preserved only at small 130 ha plot in the south-western part of the site. At least 3-fold increase of the habitat area is expected after rewetting, which insures sustainability of the regional population of the species.
	The priority tasks of the ecological rehabilitation of the peatland are: conservation and restoration of wetlands and their biological resources, as well as valuable biological natural objects - communities and separate populations of rare, threatened and economically useful animal and plant species - by means of stabilization of the hydrological regime, favorable for renewal of mire and peat forming processes.
Monitoring of biodiversity Explain which institution and through what methods will be implemented monitoring of the state of biodiversity at the peatland after the project	Monitoring of biodiversity will be conducted by the Institute of Experimental Botany by means of tracking the process of vegetation restoration before and after rewetting of the peatland (by the remote sensing method). The main monitoring method will be typification of vegetation, assessment of state of main vegetation types and separate flora's objects, prediction of succession processes on the territory (detailed description of the monitoring methods is done in publication: Methods of flora monitoring under the National Monitoring System of Environment of the Republic of Belarus / edited by A.V. Pugachevski. – Institute of Experimental Botany of National Academy of Sciences of Belarus. – Minsk: Law and economy, 2011. – 165 p.).
Land degradation benefits Please quantify the positive impact that the project will have on the state of land degradation in the peatland and surrounding landscape.	Ecological rehabilitation is aimed at restoration of typical mire water regime, vegetation cover and peat formation process.
	Restoration of vegetation cover at 1292 ha
	Arrested degradation of chemical, biological and physical soil properties at 1292 ha.
	Prevented wind erosion – no wind erosion
	Prevention of formation of fire hazard areas and barrens, reduction of probability of repeated fires. The probability of fires will be reduced, especially in areas of high or very high fire danger (total area of such plots is about 30% of the peatland's

	territory), which will reduce potential expenses for firefighting and fire preventive measures.
	Raised ground water table and restored hydrological regime at 1292 ha
State any negative environmental or socio-economic effects that the project might bring, and ways to mitigate them in the project	No negative environmental or socio-economic effects are expected.
Benefits for local people Please quantify in monitoring terms economic benefits for local people (number of people, what economic activities – hunting, mushrooms, cranberries), % increase in their income	Restoration of the hydrological regime in the project area will not have negative ecological and social effects, and it does not conflict with the interests of the local people. The main economic benefit for local people is an end to peat fires that were responsible for large amounts of smoke pollution in the nearby villages. Local people gather berries, mushrooms, medicinal plants on the territory. Restoration of the mire's hydrological regime will increase the natural potential of this area, will lead to restoration of the productivity and initial area of cranberry ground, formation of hunting grounds, which can be used for ecotourism and hunting. Restoration of the hydrological regime will improve biocoenotic capacity of the area, firstly for such important game species as elk, wild boar, black grouse, capercaillie, which will have positive effect for hunting inside the area, as well as in its surroundings. About 100 local people will benefit from increased amount of cranberries for harvesting. Average increase in the income from cranberry gathering per one family will be more than 50%.
Involvement of women in the project and/or benefits for women from the project	Cranberry gathering and selling is an important source of supplemental revenue for women in many Belarusian villages. More than 200 women from the nearby villages will be able to receive supplemental income after restoration of the natural cranberry reserves.

Berezovik on a topographic map



Berezovik -- satellite image

Pilot Site 5: Verechskoe (Gorodok)

Location of the degraded peatland on forested land (administrative district)	Vitebsk region, Gorodok district, Smolovka village
Name of the degraded peatland (if any)	The project area Gorodok is located at the territory of two peat deposits - Jushkov Mokh (Cadastre number 141H) and Verechskoe (Cadastre number 599)
Area of the degraded peatland (hectares) which will be restored	773.5 ha
Land owner / land user of the degraded peatland	The State Forestry Enterprise "Gorodokski forestry" Smolovskoe forestry division of the "Gorodokski forestry" (quarters 30 (partially), 39 (partially), 40 (partially), 49, 50, 51, 52, 68 (partially), 69 (partially))
Did the project obtain the consent from the land-user for the implementation of restoration?	Yes, there are appropriate letters from the land user (The State Forestry Enterprise "Gorodokski forestry") and local government (Gorodokski regional executive committee)
Are there local communities/villagers/rural population that are found WITHIN or immediately outside the area? Select the appropriate response	No, there are no communities/villagers/rural population residing in or immediately outside the area where the restoration is planned

BASELINE EMISSIONS

Annual average volume of GHGs which will be emitted from the degraded peatland in the future (app. in the next 20 years) in case of NO RESTORATION done at the site. Document each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO_2 equivalent per year per 1 hectare. unless otherwise specified):

Annual mineralization of organic peat caused by low ground water table. Occurs annually at 773.5 ha on average (same as total area of the peatland or less).	CO_2 = 6.06 CH_4 = 0.58 N_2O = not considered	Total GHG emissions from mineralization at the whole object's area annually = 6.64*773.5 ha = 5133
Fires. Occurs annually at more than 50% of the area on average (same as total area of the peatland or less) Sequestration in trees is 914 t CO_2 per year.	Other GHGs (total from fires) = 8633 tons CO_2 from fires per year.	Baseline emissions=5,133+8,633-914=12,852
TOTAL annual baseline emissions from one peatland		= 12852 (baseline level)

EMISSIONS AFTER rewetting

<table>
<tr><td colspan="3">Annual average volume of GHGs which will be emitted from the peatland AFTER REWETTING. Forecast emissions from each threat (mineralization, fires, other) per each gas, wherein when determining the emission only soil pool should be taken into account (tons of CO2 equivalent per year per 1 hectare. unless otherwise specified):</td></tr>
<tr><td rowspan="4">Annual mineralization of organic peat (if occurs)

Will occur annually at 773.5 ha of the peatland on average

Sequestration in trees (Pinus survives) is expected=302 t CO2 per year.</td><td>CO2 = -0.64</td><td rowspan="4">Total GHG emissions from mineralization at the whole object's area annually = 3.45*773.5 ha = 2672

Post-project emissions= 2,672-302=2,370</td></tr>
<tr><td>CH4 = 4.09</td></tr>
<tr><td>N2O = not considered</td></tr>
<tr><td>Other GHGs (specify which) = absent</td></tr>
<tr><td colspan="2">TOTAL annual post-project emissions from one peatland</td><td>=2370 after the end of the project</td></tr>
<tr><td>Explain the scientific methods / emission factors applied in the forecasting of the post-project emissions (extrapolation from similar sites in Belarus – explain assumptions, literature – name which sources, IPCC, Carbon Benefits Project methodology, etc.).</td><td colspan="2">GHG emissions are calculated using vegetation as a proxy for annual CO2 and CH4 emissions as outlined by Couwenberg et al. (2011).

For the project scenario over 20 years it is assumed that the site becomes mainly covered with typical bog vegetation dominated by Sphagnum mosses, and its landscape will be represented by hummocks, hollows, and lawns (as in case of Ostrovskoe object in Couwenberg et al, 2011. The following proportion is expected:

20% moderately wet hummocks, covered with peat moss (on extracted plots - 10%)

70% lawn, covered with peat moss (on extracted plots - 80%)

10% very wet hollows, covered with peat moss</td></tr>
<tr><td>TOTAL annual GHG reduction achieved by the project:</td><td colspan="2">Total annual reduction = 12852 (baseline level) – 2370 (after the project implementation) + 0 (displacement) = 10480</td></tr>
<tr><td>PERMANENCE / FUTURE LAND USE MODEL

Explain what mechanisms will be put in place by the project to ensure that the restored forested peatland will not be drained again or reverted to any other use that could nullify the achieved reductions in GHG emissions.</td><td colspan="2">The peatland belongs to the category "subject to special or specific protection" according to the Strategy of Conservation and Rational (Sustainable) Use of Peatlands and the Scheme of Peatlands Classification According to Ways of Use till 2030 (approved by the Resolution of the Council of Ministers of the Republic of Belarus № 1111 dated 30.12.2015).

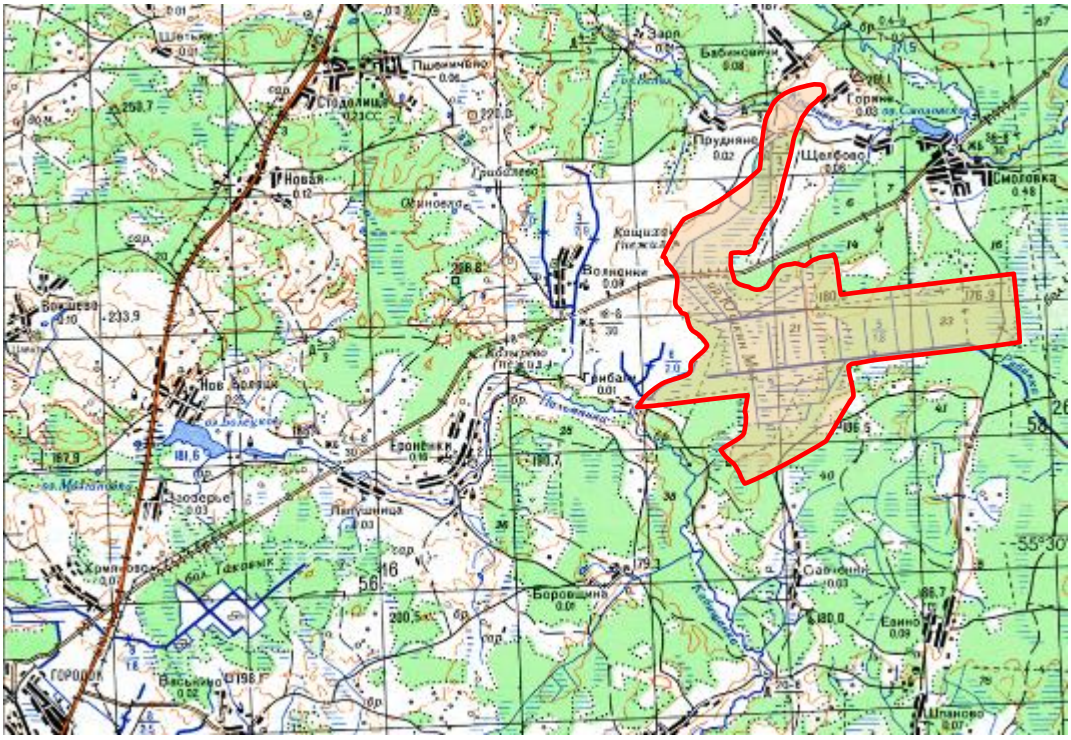
Peat deposit Verechskoe is designated as local hydrological reserve "Verechskoe" (894 ha) by the resolution of regional executive committee № 100 P dated 05.05.95.</td></tr>
<tr><td>Biodiversity benefits</td><td colspan="2">IUCN species 1: Capercaille (Tetrao urogallus)

The Capercaillie population reduced from 40 to ten species, due to overgrowth in displaying grounds, depletion of the berry reserves and draining. After rewetting, restoration of the berry reserves and</td></tr>
</table>

Please state, which IUCN Red List species, occurring in the vicinity of the peatland, will benefit from the project, and how they will benefit. Please provide any other details on further benefits of this project for biodiversity from the point of view of landscape approach.	removal of overgrowth, the number of Capercaillie males is expected to reach 20.
	IUCN Species 2: Black Grouse (Lirurus tetrix) Gorodische Bog had a relatively large Black grouse population 20 years ago (around 40 pairs), but only a few birds remained, because of draining and overgrowth. The population is expected to increase to 30 pairs after the water level is raised and typical mire vegetation has been restored.
	IUCN Species 3: Crane (Grus grus) Five pairs of the Crane nested in the mire before it was drained. There are no cranes at the mire at present. At least three pairs of the Crane are expected to nest in the mire after rewetting.
	The priority tasks of the ecological rehabilitation of the peatland are: conservation and restoration of wetlands and their biological resources, as well as valuable biological natural objects - communities and separate populations of rare, threatened and economically useful animal and plant species - by means of stabilization of the hydrological regime, favorable for renewal of mire and peat forming processes. The rewetting will improve water supply of the Rabinka River, originating from this peatland.
Monitoring of biodiversity Explain which institution and through what methods will be implemented monitoring of the state of biodiversity at the peatland after the project	Monitoring of biodiversity will be conducted by the Institute of Experimental Botany by means of tracking the process of vegetation restoration before and after rewetting of the peatland (by the remote sensing method). The main monitoring method will be typification of vegetation, assessment of state of main vegetation types and separate flora's objects, prediction of succession processes on the territory (detailed description of the monitoring methods is done in publication: Methods of flora monitoring under the National Monitoring System of Environment of the Republic of Belarus / edited by A.V. Pugachevski. – Institute of Experimental Botany of National Academy of Sciences of Belarus. – Minsk: Law and economy, 2011. – 165 p.).
Land degradation benefits Please quantify the positive impact that the project will have on the state of land degradation in the peatland and surrounding landscape.	Ecological rehabilitation is aimed at restoration of typical mire water regime, vegetation cover and peat formation process.
	Restoration of vegetation cover at 386.75 ha
	Arrested degradation of chemical, biological and physical soil properties at 773.5 ha
	Prevention of formation of fire hazard areas and barrens, reduction of probability of repeated fires. The probability of fires will be reduced, especially in areas of high or very high fire danger (total area of such plots is about 20% of the peatland's territory), which will reduce potential expenses for firefighting and fire preventive measures.

	Prevented wind erosion – no wind erosion
	Raised ground water table at about 700 ha
	Restored wetland functions at about 700 ha
State any negative environmental or socio-economic effects that the project might bring, and ways to mitigate them in the project	No negative environmental or socio-economic effects are expected.
Benefits for local people Please quantify in monitoring terms economic benefits for local people (number of people, what economic activities – hunting, mushrooms, cranberries), % increase in their income	Restoration of the hydrological regime in the project area will not have negative ecological and social effects, and it does not conflict with the interests of the local people. The main economic benefit for local people is an end to peat fires that were responsible for large amounts of smoke pollution in the nearby villages; also the project implementation will lead to increase of productivity and area of cranberry fields (a number of cranberry collectors may raise from 30 to 200). Local people gather berries, mushrooms, medicinal plants on the territory. Restoration of the mire's hydrological regime will increase the natural potential of this area, will lead to restoration of the productivity and initial area of cranberry ground, formation of hunting grounds, which can be used for ecotourism and hunting. Restoration of the hydrological regime will improve biocoenotic capacity of the area, firstly for such important game species as elk, wild boar, black grouse, capercaillie, which will have positive effect for hunting inside the area, as well as in its surroundings. About 100 local people benefit from increased amount of cranberries for harvesting. Average increase in income from cranberry gathering per family will be more than 50%.
Involvement of women in the project and/or benefits for women from the project	Cranberry gathering and selling is an important source of supplemental revenue for women in many Belarusian villages. More than 100 women from the nearby villages will be able to receive supplemental income after restoration of the natural cranberry reserves.

Verechskoe -- topographic map



Verechskoe -- satellite image

ANNEX 7: RISK ANALYSIS

Risk	Level	Mitigation
The project is too ambitious for the amount of resources available	M	During PIF preparation the project activities were designed based on a careful analysis of their cost-effectiveness. The ambition of the proposed framework is considered to be just right for the amount of resources available from the GEF and co-financing. Based on further analysis carried out during the PPG, as well as following discussions with stakeholders, the feasibility of implementing the project framework outlined in the PIF is confirmed. At the implementation stage, the management unit will carefully monitor implementation on a regular basis vis-à-vis the available resources. If there is a mismatch, the Project Steering Committee, in agreement with implementing agencies and GEF Secretariat (where relevant) might be called in to consider a corresponding change to project outputs or strategy. At the same time, it is equally likely (as has been the evidence with all previous and present GEF projects) that new co-financing is going to be identified in addition to those confirmed at the CEO Endorsement stage.
Climate change leads to catastrophic impacts	L	More frequent drought, warmer summers and changed winters are some of the climate change symptoms in Belarus. During the preparation of its National Communication to UNFCCC and implementation of the peatland project, Belarus has developed good knowledge on climate change impacts on the vegetation and fauna structure of the country. The expert teams that will be working on forestry and PA plans will use that knowledge to make sure that proposed solutions incorporate climate change risks.
Use of machinery during restoration and management of habitat might damage flora and fauna of wetlands (soil compaction, ditches formation, etc.)	M	All works will be conducted taking into account the standing ground water table and soil condition. The main bulk of work will be carried out during the winter season when minimal to no damage would be expected. The project will take stock of the lessons learnt from wetland ecosystems management in Poland and Lithuania. The project experts have an understanding of what kind of machinery (light weight) is necessary to work on wetland soils without damaging them. Nevertheless, this precaution will be specially highlighted in the work plan and procurement practices related to these restoration works.
Demand and price dynamics in wetland biomass (pellets) might influence project activities	M	Presence of private sector agents who already work on biomass production shows that the demand and prices for biomass products have remained stable over the course of the past 10 years. The experience of similar GEF projects implemented elsewhere, as well as non-GEF projects in Belarus (e.g. projects funded by EU in Belarus) confirms that the viability of conservation approaches and technologies and their marketability depends on (1) quality of feasibility study, (2) experience during implementation, (3) careful monitoring and adjustment of proposed approaches after their piloting. All three elements above will be paid careful attention to, given that UNDP has rich experience in engaging best national and international specialists in biomass production. In addition, the project will learn from wetland biomass projects in Lithuania and Poland and will develop its business plan with knowledge of the most cost-effective and biodiversity-friendly approaches.
Innovative biotechnical measures (e.g., “stepping stones” of threatened species habitats, translocation, artificial nests) cannot be easily applied in Belarus because of the possibility of events such as droughts and floods	**M**	Catastrophic floods and droughts may affect the success of measures to restore the marshes. To reduce the risk, for the majority of the pilot areas the project plans to provide optimal hydrological regime. This will reduce the negative impact on the success of the pilot areas and activities, even if there is a lack or excess of water.

ANNEX 8: TERMS OF REFERENCE

Project Staff: Project Manager

Background

The Project Manager will be locally recruited, based on an open competitive process. Generally, he/she will be responsible for meeting government obligations under the project, under the national implementation modality (NIM). He/she will be responsible for the overall management of the project, including the mobilization of all project inputs, supervision over project staff, consultants and sub-contractors. The Project Manager will report to the PD for all of the project's substantive operational issues. The Project Manager will report on a periodic basis to the PSC on the overall project progress and future project planning. The incumbent will perform a liaison role with the Government, UNDP, implementing partners, NGOs and other stakeholders, and maintain close collaboration with any donor agencies supporting project activities.

Duties and Responsibilities

- Supervise and coordinate the production of project outputs, as per the project document;
- Mobilize all project inputs in accordance with procedures for nationally implemented projects;
- Coordinate the recruitment and selection of project personnel;
- Supervise and coordinate the work of all project staff, consultants and sub-contractors;
- Prepare and revise project work and financial plans;
- Liaise with UNDP, relevant government agencies, and all project partners, including donor organizations and NGOs for effective coordination of all project activities;
- Oversee and ensure timely submission of the Inception Report, Combined Project Implementation Review/Annual Project Report (PIR/APR), Technical reports, quarterly financial reports, and other reports as may be required by UNDP, GEF, TFS and other oversight agencies;
- Disseminate project reports and respond to queries from concerned stakeholders;
- Report progress of project to the PSC, and ensure the fulfilment of PSC directives;
- Oversee the exchange and sharing of experiences and lessons learned with relevant community based integrated conservation and development projects nationally and internationally;
- Ensure the timely and effective implementation of all components of the project;
- Assist relevant government agencies and project partners - including donor organizations and NGOs - with development of essential skills through training workshops and on the job training thereby upgrading their institutional capabilities;
- Carry out regular, announced and unannounced inspections of all sites and project-funded activities.

Qualifications and experience

- A post-graduate university degree in natural sciences or resource management (or equivalent) and/or business management;
- At least 10 years of relevant experience in conservation, forestry, wildlife and/or pasture planning and management;
- At least 5 years of project management experience;
- Working experience in international projects, or within international organisations, is highly desirable;
- Working experience with the project stakeholder institutions and agencies is desired;
- Ability to effectively coordinate a large, multi-stakeholder project;
- Ability to administer budgets, train and work effectively with counterpart staff at all levels and with all groups involved in the project;
- Strong writing, presentation and reporting skills;
- Strong computer skills;

- Excellent written communication skills; and
- A good working knowledge of Russian and English is a requirement.

Project Staff: Project Administrative/ Financial Assistant

Background

The Project Financial Assistant will be locally recruited based on an open competitive process. He/she will be responsible for the overall financial management of the project. The Project Financial Assistant will report to the Project Manager. Generally, the Project Financial Assistant will be responsible for supporting the PM in meeting government obligations under the project, under the national implementation modality (NIM).

Administrative Duties and Responsibilities

- Monitor project budgets and financial expenditures;
- Assist in all procurement and recruitment processes;
- Advise all project counterparts on applicable financial procedures and ensures their proper implementation;
- Contribute to the preparation and implementation of progress and financial reports;
- Support the preparations of project work-plans, budgets and operational and financial planning processes;
- Assist in the preparation of payments requests for operational expenses, salaries, insurance, etc. against project budgets and work plans;
- Work closely with financial counterparts in the UNDP Country Office on payment requests;
- Follow-up on timely disbursements by the UNDP Country Office;
- Maintain data on co-financing commitments to the project;
- Coordinate the annual financial audit of the project; and
- Perform other duties as required.

Finance Duties and Responsibilities

- Collect, register and maintain all information on project activities;
- Contribute to the preparation and implementation of progress reports;
- Advise all project counterparts on applicable administrative procedures and ensures their proper implementation;
- Maintain project correspondence and communication;
- Assist in procurement and recruitment processes;
- Receive, screen and distribute correspondence and attach necessary background information;
- Prepare routine correspondence and memoranda for Project Managers signature;
- Assist in logistical organization of meetings, training and workshops;
- Prepare agendas and arrange field visits, appointments and meetings both internal and external related to the project activities and write minutes from the meetings;
- Maintain a project filing system;
- Maintain records over project equipment inventory; and

Qualifications and experience

- A post-school qualification (diploma, or equivalent), preferably in bookkeeping (or equivalent);
- At least 5 years of relevant financial management experience;
- Work experience in UNDP-GEF projects is highly desirable;
- Demonstrable ability to maintain effective communications with different stakeholders, and arrange stakeholder meetings and/or workshops;
- Demonstrable ability to administer project budgets, and track financial expenditure;
- Excellent computer skills, in particular mastery of all applications of the MS Office package;

- Excellent written communication skills; and
- A good working knowledge of Russian is a requirement, while knowledge of English will be an advantage.
-

Project Staff: Scientific Coordinator

The Scientific Coordinator will provide scientific leadership, guidance and supervision for the team of national specialists who will implement specific activities of the project at the local level. He/ she will ensure substantive coordination of project activities and will also closely coordinate project activities with relevant Government institutions and hold regular consultations with other project stakeholders and partners.

ANNEX 9: RESPONSE TO COMMENTS FROM GEFSEC, STAP, AND COUNCIL

Comment	Response	Location of changes in UNDP Prodoc
STAP comments		
3. The case for conserving globally important biodiversity is strong. The section on drivers of degradation is useful, but would be strengthened through the use of maps and if it was made more concise with additional editing and organization. The baseline scenario shows reasonable commitment to these issues in Belarus. This is further validated by the coordination of this project with, for example, the World Bank Forest Sector GEF-6 project through the Ministry of Environment. The narrative for the proposed alternative scenario is written and organized in a way that is hard to read, and does not always appear to match the much stronger project description. This may well simply be a question of editing and text organization. The incremental cost reasoning table is strong, although it is not always easy to reconcile the numbers provided. Under climate change, for instance, there is "avoided deforestation on 11,000ha resulted from redesigned management plans for globally important forests at 150,000 ha". What does this mean, exactly? Peatland forest restoration of 10,000 ha and peat restoration of 2,000 ha is difficult to reconcile with the figures in the Project Summary table. These figures seem to be repeated in different parts of this table, and are difficult to follow. It is therefore particularly important that these outcomes are carefully summarized (as indicators) in the Project summary table.	The drivers of degradation section has been edited to make it more concise. Maps on project sites are provided in the annexes describing the pilot sites of the project. The description of project components has been clarified; each component has been divided into outputs and activities. The numbers in the IC reasoning table have been reconciled with the description of project components, outputs and activities. The numbers have also been reconciled with the project framework/ project summary table in the CEO Request.	Section 1.2 and Annex 1 to 6 Section 2.4 Section 2.1
4. As it currently stands, the project is largely a combination of valuable but individual actions to address a range of important biodiversity issues in Belarus. The process of implementing	In terms of national norms and policies for biodiversity management in peatlands, the project has identified one area of weakness. Despite the value of peatlands for biodiversity conservation and ecological safety, Belarus' legislation has no single normative legal act that	Section 2.4, Output 1.1

Comment	Response	Location of changes in UNDP Prodoc
these changes is not really described, but could well be the most important contribution of the project if well designed. There may well be an intention to use these pilots to shift national norms and policies about biodiversity management in forests and peatlands, but the project would be stronger if it made this explicit, and also spent more time thinking through the process of how to implement these pilots in ways that established national norms, standards and even policy. A good example to learn from is the UNDP/GEF Grasslands Project in South Africa. In a somewhat similar manner to this project, it used high level facilitators to work with stakeholders to solve field-level problems, but importantly it ensured that these field practices were codified as guidelines by the stakeholders. Because of the widespread engagement of stakeholders in issues like urban protected areas, mine rehabilitation and offsets, and biodiversity management in forests, these guidelines were often adopted as national standards and norms. Perhaps Component 4 should be added and include 3.5 (monitoring and research) but also the codification of best practice?	would provide, at the legislative level, integrated management of multiple social relations in the field of protection and rational (sustainable) use of mires (peatlands). Therefore, the project will address this gap by elaborating the concept and draft of the Law of the Republic of Belarus "On the Protection and Use of Peatlands". This will state the legal framework for the protection and rational (sustainable) use of mires (peatlands) – Output 1.1. The pilots will be important insofar as they will inform development and approval of this law. In terms of biodiversity management in forests, until 2016, particularly valuable forests, including old growth forests, were protected according to Belarus' nature conservation and forest legislation by means of designation of these territories as "specially protected plots". In 2016, several amendments were made to the Forest Code in order to harmonize the forest and nature conservation legislation, as well as to meet the requirements of international conventions. As a result of these amendments, the concept of "specially protected plots" has been abolished, and forests designated as such are to be distributed to other categories of protected forests: nature conservation forests (habitats of protected species, rare biotopes, and forests on protected areas), protective forests, and recreational forests. The 2016 amendments also put into law the need for Forestries to review their forest management plan together with researchers should it be identified that there are rare biotopes within the forests they manage (whether protective forests or not). Further, in 2014 Belarus ratified the Bern Convention on the Conservation of European Wildlife and Natural Habitats. As a result, the concept of "rare biotopes" appeared in nature conservation legislation and the procedures for their identification and transfer for protection were developed. However, introduction of the concept of "rare biotopes" in nature conservation legislation is only the first step in securing biodiversity conservation at the biotope level. Assignment of particularly valuable plots as "rare biotopes" requires their inventory by specialists, preparation of protection documents and introduction of all necessary procedures and results into forest management plans. Planning and implementation of forest management activities in most forestry enterprises is usually carried out under conditions of lack or absence	Section 2.4, Output 2.1

Comment	Response	Location of changes in UNDP Prodoc
	of information about distribution of protected species and rare biotopes needing special protection. Typically, only formerly known data on location of habitats of Red Data Book animal and plant species are considered by forestry enterprises during forest management planning. As a result, rare biotopes subject to special protection according to the Bern Convention and national legislation can be subject to cutting and other forestry activities. The main reasons that rare biotopes are not given special consideration in forest management plans are: the lack of a system for collection and analysis of information on habitats of globally threatened species and location of rare biotopes, insufficient knowledge about identification criteria, and low awareness about the value of rare biotopes. To address these shortcomings, Output 2.1 of the project will make an inventory, prepare passports and protection obligations, and transfer forest biotopes subject to special protection (at least 150,000 ha) to land users for protection and sustainable use. The project will create a model of how to bring together foresters and researchers to follow the new Forest Code by (1) identifying the biotopes, (2) describe them, (3) create conservation/ protection measures, and (4) control implementation of measures and ecological success. If such pilot examples exist, then whether the rare biotopes are within forests of protection or non-protection categories, once identified, the biotopes will be protected, and the project's model will be replicated using the new Forest Code as the legal basis. (This explanation is provided in the Annex titled "Justification and action plan for modified forest management paradigm (Output 2.1)")	
5. The project makes an effort to reconcile delivery of multiple global environmental benefits in biodiversity, land degradation and climate change. The choice of peatland ecosystems is a strong case for this type of interventions. The project assumes that "release of carbon [will be] prevented and sequestration capacities restored of soil and vegetation at 250,000 ha of degraded peatland soils". Carbon cycle dynamics of peatland ecosystems is complicated. Peatlands store	The carbon benefits expected to be generated by the project stem from avoided emissions and increased carbon sequestration functions of peatland and forest ecosystems resulting from: Output 2.1 Avoided deforestation resulting from HCVF designation at 800 ha. Total area of selected sites is no less than 150,000 ha. Without implementation of conservation measures about 800 ha of area will be cut down in the next 20 years. Output 2.1 Reduced (dryland) forest degradation at 9,500 ha. Output 2.2 Restoration of 12,456 ha of forest peatland. This area includes 5 project sites where the water level restoration will be implemented.	Carbon calculations are summarized in Section 2.1, Table 1. Carbon calculations using the EX-ACT tool can be provided on request.

Comment	Response	Location of changes in UNDP Prodoc
carbon in different parts of their ecosystem (biomass, litter, peat layer, mineral subsoil layer), each having their own GHGs (carbon dioxide, methane, and often nitrous oxide) dynamics, both spatial and temporal (e.g., Parish, F., Sirin, A., Charman, D., Joosten, H., Minayeva, T., Silvius, M. and Stringer, L. (Eds.) 2008. Assessment on Peatlands, Biodiversity and Climate Change: Main Report. Global Environment Centre, Kuala Lumpur and Wetlands International, Wageningen.). There are multiple best management practices (BMPs) to restore degraded peatlands that would have measurable GHG benefits (reviewed recently by FAO (2014): http://www.fao.org/3/a-i4029e.pdf). Most of these practices aim to sustain/increase waterlogging and restrict aerobic decay of carbon in peatland soils. This project proposes a range of practices within and outside of PAs (regulated cranberry picking, sustainable grazing, sustainable wetland biomass collection, reconstruction of drainage infrastructure and etc.) that could have opposite impacts on GHG emissions. STAP recommends that project proponents carefully review existing literature on the potential impacts of different management techniques for peatland and wetlands restoration on GHG emissions. In some instances, preserving biodiversity and local livelihoods could run counter to GHG reduction benefits and will be locally specific. Final choice of management options should be informed by the assessment of all potential benefits (biodiversity, sustainable land management and GHG benefits). GHG benefits, particularly, should be assessed for project model areas based on the existing information if not	Output 3.1 Restoration of 1,025 ha of open peatland. This area is depleted peatland site Dokudovskoe. Output 1.5: Improved grassland management at Turov Lug – two sites with a total area of 560 ha Output 1.4 Replacement of fossil fuels with peatland biomass and pellet production at 3,800 ha. Based on the available equipment, its productivity and effective working time, it is planned to clear and collect mire biomass annually at 950 ha of fens over 4 years. Total avoided emissions + carbon sequestered = **3,051,377 tCO2-eq/20y** (see EX-ACT tool for detailed calculations) + **148,200 tCO2-eq/20y = 3,199,577 tCO2-eq/20y** (see CCM tracking tool for explanation) The above estimation of carbon benefits of the project has been undertaken by the national laboratory of peatland carbon of the National Academy of Sciences, which has close collaborations with researchers involved in developing these methodologies (for example, Joosten and Minke). The group is very familiar with the ongoing research in this field and related research papers, findings, and recommendations. All of the proposed sustainable use activities (cranberry picking, sustainable grazing, peatland restoration through water table regulation, biomass harvesting) have been designed through consultations with the national laboratory of peatland carbon of the National Academy of Sciences and have proved to either have a positive impact on GHG emission reduction or no negative impact. Overall, project activities have been carefully designed so that there is no conflicting interest between community livelihoods, biodiversity conservation, land degradation, sustainable forest management and climate change mitigation. Furthermore, the carbon calculations use the EX-ACT tool which is mentioned in the "RECOMMENDED FRAMEWORK FOR AFOLU PROJECTS" in the GUIDELINES FOR GREENHOUSE GAS EMISSIONS ACCOUNTING AND REPORTING FOR GEF PROJECTS that was submitted to the 48th Council Meeting.	

Comment	Response	Location of changes in UNDP Prodoc
additional measurements. In assessing GHG impact of project activities, STAP recommends using new GHG accounting for GEF project framework that will be submitted as Information Document for GEF's 48th Council meeting.		
6. It is surprising that the PIF does not mention any lessons learned from several completed projects on peatlands in Belarus and elsewhere including projects funded by the GEF (IDs: 2057, 2104, 2751, particularly 4468 focused on carbon stocks monitoring, 5764, and 6947 as well as SGP). Of particular relevance are experiences of the completed German government funded project summarized in: Carbon credits from peatland rewetting Climate -biodiversity - land use. Science, policy, implementation and recommendations of a pilot project in Belarus Ed.: Franziska Tanneberger; Wendelin Wichtmann, 2011. 223 pp. Assuming that this project could generate significant MRV carbon benefits potentially eligible for voluntary carbon markets, it is surprising that PIF does not mention this possibility.	Over the last decade or so, there have been a number of internationally funded projects in Belarus that have focused on the conservation and sustainable use of peatlands. Each project has built on the lessons learned from the previous one. Even though, broadly, they all address the same issue namely, the conservation and sustainable use of the multiple benefits generated by healthy peatlands, each project varies in scale and approach to the issue and responds to the identified national priorities and desired directions at the time the projects were formulated. For instance, the very first project was an MSP (GEF ID 2057: Renaturalization and Sustainable Management of Peatlands to Combat Land Degradation, Ensure Conservation of Globally Valuable Biodiversity, and Mitigate Climate Change). This was relatively narrow in scope and focused on the re-naturalization of extracted/ mined peatlands with the overall goal being to mitigate climate change, prevent land degradation, ensure biodiversity conservation, and prevent radioactive pollution by rehabilitating degraded peatlands (15 sites). Other projects focused on bringing more wetland areas into the fold of the national protected area system and improving the management effectiveness – one focusing on the Polesie landscape in the southern part of the country (GEF ID 2104: Catalyzing Sustainability of the Wetland Protected Areas System in Belarusian Polesie through Increased Management Efficiency and Realigned Land Use Practices), and another on bringing oligotrophic and mesotrophic peatlands in the Poozerie landscape in the northern part of the country that were least-represented ecosystems into the national PA system (GEF ID 4468: Landscape Approach to Management of Peatlands Aiming at Multiple Ecological Benefits). These projects have been instrumental in steadily building local and national capacities for conservation of peatlands and enhancing awareness of the key issues among government staff, technical experts, and policy makers. They	Section 2.9

Comment	Response	Location of changes in UNDP Prodoc
	have built up a body of knowledge and experience in the country that has enabled national stakeholders to continue to push the boundary when it comes to conserving the multiple global benefits generated by peatlands. Examples of the technical capacity built by these various projects include the national laboratory of peatland carbon of the National Academy of Sciences, policies for and standards on renaturalization of degraded non-forested peatlands, capacities for monitoring GHG emission reductions and biodiversity, partnerships between researchers, peat extraction companies and Government, improved capacities of hydrotechnical companies to maintain hydrological regime on disturbed peatlands, etc. The experience has also had an impact in other regions of the world inasmuch as specialists and experts who have been involved in the development and implementation of these projects have been called on for support and advice in developing similar projects in other countries (for example, Lithuania, Russia, Ukraine, Thailand). In the current project, all activities related to conservation and sustainable use of peatlands have been designed taking in to consideration the experiences of the past projects. National experts involved in those projects are also participating in the development and implementation of this one. Some of the key lessons emerging from the past projects were that in order to secure the multiple benefits from peatlands, passive protection is insufficient and there is a need for accompanying active habitat management and conservation. The latter, in turn, requires financing that can be sustained (the main focus of Component I is on securing financial sustainability for active habitat management measures in protected areas, and Component III also promotes active habitat management through targeted measures to remove threats to insufficiently studied globally threatened species). The past projects also highlighted the need to direct conservation efforts to areas that harbor globally significant biodiversity but lie outside formal PAs and Component II of the project is designed to meet this need. Another important lesson emerging from past experience was the need to dedicate resources for regular monitoring of the biodiversity, water tables, and soil and carbon benefits of the project so that measures can be	

Comment	Response	Location of changes in UNDP Prodoc
	appropriately adapted, and Outcome III (Output 3.4) addresses this. It is these lessons that have helped national stakeholders home in on the need to specifically focus on forests and wetlands that harbor internationally important biodiversity and are important for climate and land integrity, and to make measures/ actions in these areas effective from a conservation perspective and sustainable from a financial perspective. It departs from previous projects in that the main focus is a subset of areas that harbor globally significant biodiversity that encompass peatland and non-peatland areas, as well as areas within PAs and outside. With respect to carbon trading, the VCS methodology on restoration of peatlands is still undergoing the international review and approval process and hence no trading is possible at the moment.	
Council Members		
Comments from Germany: Suggestions for improvements to be made during the drafting of the final project proposal: It is mentioned that major parts of the forests in Belarus are certified (e.g. FSC). The PIF should clarify the links to this certification approach, whether biodiversity aspects are respected in these areas and whether this can be adapted to non-certified areas.	Despite the fact that over 85% of production forests of Belarus are certified either under the Forest Stewardship Council or the European certification scheme, biodiversity values are not accounted for properly in the management of forests. One of the main reasons for the inadequate incorporation of biodiversity conservation in forest management is the lack of data on the location of habitats of rare species and habitats, and the lack of experience among forestry workers with sustainable use of forests. The project will tackle this gap by identifying habitats of rare species and habitats that need to be taken under protection on the territory of 35 forestry enterprises (with or without certification). Simultaneously, forestry workers will be trained in sustainable forest management and the protection of habitats of rare species and habitats, this creating models that can facilitate biodiversity conservation in production forests.	Output 2.1

ANNEX 10: UNDP SESP (ATTACHED SEPARATELY)

ANNEX 11: DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES IN EXECUTION OF THE PROJECT "CONSERVATION-ORIENTED MANAGEMENT OF FORESTS AND WETLANDS TO ACHIEVE MULTIPLE BENEFITS"

The UNDP country office may provide at the request of the Executing Entity the following support services for the activities of the project:

(a) Identification and/or recruitment of project personnel;

(b) Identification and facilitation of training activities;

(c) Procurement of goods and services;

The procurement of goods and services and the recruitment of project personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures.

Pursuant to the relevant provisions of the Standard Basic Assistance Agreement (SBAA) between the Government of Belarus and UNDP, signed on 24 September 1992, and provisions of the project document, the provisions on liability and privileges and immunities shall apply. The Government shall retain overall responsibility for the nationally managed project through MoNREP. The responsibility of the UNDP country office for the provision of the support to the MoNREP shall be limited to the services detailed in the table below.

Any claim or dispute arising under or in connection with the provision of support by the UNDP country office shall be handled pursuant to the relevant provisions of the SBAA.

In accordance with the provisions of the project document "Conservation-oriented management of forests and wetlands to achieve multiple benefits", the UNDP country office shall provide support at the request of the MoNREP as described in the table below. Cost-recovery by UNDP country office for providing support services to the MoNREP shall be funded from the project budget in a way specified in the Table below.

Fee based method, when UNDP Country Office charges the project for provided services based on number of transactions and transaction fee in accordance with the country office pricelist.

Schedule for the provision of the Support Services, cost and method are described in the table below.

If the requirements for support services by the country office change during the life of a project, the annex may be revised with the mutual agreement of the UNDP Resident Representative and the MoNREP.

International Public Sector Accounting Standards are financial reporting standards used in UNDP.

TABLE: Description of UNDP Country Office Support Services in execution of the project "Conservation-oriented management of forests and wetlands to achieve multiple benefits"

Support Services	Schedule for the provision of the support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
Processing of payments	Based on request for payment	Cost is based on the Universal Price List approved by the UNDP HQs annually	Amount of reimbursement is based on the quantity of transactions performed and reimbursed quarterly through the UNDP accounting system Atlas
Procurement of goods and services	Based on request and project annual work plan	Cost is based on the Universal Price List approved by the UNDP HQs annually	Amount of reimbursement is based on the quantity of transactions performed and reimbursed quarterly through the UNDP accounting system Atlas
Staff and consultants` selection and recruitment process	Based on request and project annual work plan	Cost is based on the Universal Price List approved by the UNDP HQs annually	Amount of reimbursement is based on the quantity of transactions performed and reimbursed quarterly through the UNDP accounting system Atlas
Travel arrangements	Based on request and project annual work plan	Cost is based on the Universal Price List approved by the UNDP HQs annually	Amount of reimbursement is based on the quantity of transactions performed and reimbursed quarterly through the UNDP accounting system Atlas
Administrative support service (pouch service, visa support, customs clearance, *etc.*)	Based on request and project annual work plan	Cost is based on UNDP CO price list approved by the UNDP CO annually/ Cost is based on the Universal Price List approved by the UNDP HQs annually	Amount of reimbursement is based on the quantity of requests and reimbursed through the UNDP accounting system Atlas periodically
IT support service	Based on request	Cost is based on UNDP CO price list approved by the UNDP CO annually and prorated IT staff pro-forma costs	Amount of reimbursement is based on the quantity of requests, service timeframe and reimbursed through the UNDP accounting system Atlas periodically