Restoring Peatlands in Russia

for fire prevention and climate change mitigation

Technical assistance project in the framework of the German-Russian bilateral cooperation

On behalf of: Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety of the Federal Republic of Germany

KFW

Wetlands International

Russian Academy of Sciences Institute of Forest Science

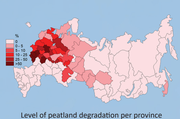
Succow Stiftung

ERNST MORITZ ARNDT UNIVERSITÄT GREIFSWALD

Project background and rationale

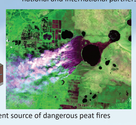
Peatlands cover only 3% of the global total land area, but contain 500 gigatons of carbon – twice as much as the world's forests. Natural peatlands supply diverse and significant ecosystem services. They regulate the balance of water and green-house gases and store 20-30% of the world's soil carbon. When drained, peatlands become strong sources of greenhouse gases (GHG) and water pollution, and are prone to fire.

In European Russia, ten million hectares of peatlands, that were drained for various uses, have become to a large extent abandoned due to recent economic changes. In summer 2010, the peat fires around Moscow covered less than 500 ha, but caused more smoke than many thousands of hectares of forest fires and were thus the main cause of significant public health and economic impacts. Since 2011, the Restoring Peatlands in Russia Project has been working with local, national and international partners to address these problems.



Level of peatland degradation per province


Drained peatlands are a permanent source of dangerous peat fires


Overview map of rewetting activities in seven participating regions

Six work areas for peatlands restoration in Russia

Inventory and prioritization of drained peatlands for restoration

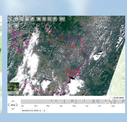
Our approach:

- Mapping of peatlands based on topographic maps, remote sensing and sectorial information.
- Prioritization of sites for restoration based on the Decision Support System (DSS) which includes integrated assessment of natural, economic and social conditions as well as stakeholder analyses.

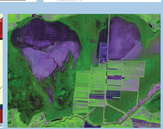
Our results:

- Peatlands in the Moscow Province mapped. Integrated information on peatlands generated to a GIS.

- GIS based decision making instrument on peatlands management developed and handed over to the Government of the Moscow Province.



- Mapping methodology developed and published. It includes methods for remote sensing data processing and analysis of spatial sectorial information.



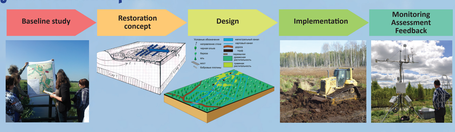
Implementation of rewetting and restoration pilots

Our approach

- Preparation of rewetting project designs and their implementation in pilot areas.
- Development of methodologies and testing of diverse rewetting techniques.
- Monitoring of the effectiveness and optimal management of restored areas.

Our results

- Peatland restoration methodology is based on a multi-stage approach. At every stage, decisions for peatland restoration are based on up-to-date information on ecosystem status, social-economic situation and legal aspects of project implementation.



- Ecological restoration methods applied to an area of around 15,000 ha in the Moscow, Vladimir and Tver provinces, including 11,000 ha implemented with local co-financing.

- 20,000 ha sufficiently rewetted in the Moscow Province following the project's standards rewetting activities implemented by the Moscow Province using hydro-technical engineering approaches in 2011–2013 on a total area of 73,000 ha).

- 15,000 ha are ready with final design or concept design to be rewetted in the Nizhny Novgorod, Tver, Ryazan and Vladimir provinces and baseline surveys are conducted in the Kaluga, Ryazan and Kaliningrad provinces.

Monitoring and assessment of impacts

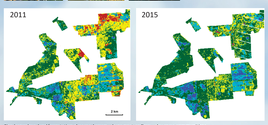
Our approach

- Improvement of scientific knowledge of the influence of different peatland management regimes on GHG emissions.
- Establishment of a monitoring system for GHG and biodiversity as a method for evaluation of rewetting success.
- Assessment of social and economic conditions after restoration.

Our results

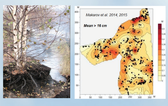
- Monitoring of GHG emissions at established reference points, including Eddy-covariance and chamber measurements.

- GEST model (GHG monitoring based on mapping of vegetation change) has been adjusted for Russia, at the first stage using 6 classes for monitoring and evaluation of rewetting effectiveness based on remote sensing approach.



Fire-hazardous land/vegetation classes: brown – bare peat, yellow – dry grass communities;
Not fire-hazardous land/vegetation classes: blue – open water, blue-green – hydrophilic vegetation;
Medium fire-hazardous land/vegetation classes: different green – forested and sparsely treed.

- A detailed study on carbon losses resulting from peat fires was completed at a selected site.



- Social and economic benefits of peatlands restoration are assessed.

Technical and scientific capacity building for Russian institutions

Our approach

- Training courses and seminars.
- International exchanges.
- Joint Russian-German institutional research and methodology development, and enhancement of technical know-how.
- Development of a formal framework for decision making on rewetting and adaptive peatland management based on monitoring and evaluation.

Our results

- Six training courses on rewetting techniques complemented with study tours to Germany and to project sites in Russia were held for a total of 55 participants.

- Two comprehensive training seminars on hydrological issues and economic incentives to restore degraded peatlands were held in Russia.

- An international workshop on the project's outcomes and prospects for the future was held in the city of Vladimir in September 2016, with 100 participants.

Technical and policy recommendations

Our approach

- Providing easy access to technical and methodological information,
- Raising awareness of stakeholders.
- Enhancing political support of peatland restoration through mechanisms of international conventions, national strategic planning and civil society participation.
- Providing legal conditions for the application of tested techniques and best practices.

Our results

- Various activities and facilities for awareness raising were supported, including an education and visitor center, a peat museum, four rewetting demonstration sites, a Sphagnum cultivation site and two educational trails in restored peatlands.

- The UN Momentum for Change Climate Solution Award 2017 was granted to the Project at a special ceremony at the COP23 Climate Conference in Bonn, Germany.


KfW Bankengruppe/Tech Bolemann

- A gap analysis of Russian legislation carried out. Recommendations for a legal framework for peatland restoration developed and submitted to the government.

Mechanisms for sustainable peatland management

Our approach

- Engaging the private sector in funding of restoration projects and in peatland management.
- Introducing economic incentives for peatland restoration.
- Conducting cost-benefit analysis of rewetting projects.
- Integrating the results of peatland restoration at pilot sites implemented in Russia into the international funding mechanisms – carbon and other ecosys-

Our results

- Two study areas established in the Tver Province and used for research on feasibility and effectiveness of paludiculture.

- A feasibility study for black alder plantations carried out in the Kaluga Province.

- A demonstration site with floating mats established at the Losiny Ostrov National Park in Moscow to illustrate Sphagnum farming as a sustainable peatland use option.

Project results and impact

- The project represents one of the largest on-the-ground peatland restoration projects in the world to focus on climate change mitigation and adaption.
- To date, over 35,000 hectares of drained peatlands have been restored using ecological methods with another 15,000 hectares currently underway.
- The total amount of emission reductions achieved is currently estimated at 175,000 to 220,000 tons CO_2 equivalent per annum.
- Monitoring activities and assessments of rewetting effectiveness in terms of fire prevention and climate change mitigation were carried out on over 73,000 ha in the Moscow Province.
- The project used the state-of-the-art technologies like remote sensing and GIS to map and monitor the situation of peatland ecosystems in Russia.
- The project has built a strong scientific component applying modern methods for precise measurements of flows of greenhouse gasses from drained and restored ecosystems.
- The project has introduced paludiculture (wet agriculture on restored peatlands) and sustainable management practices at several sites in Russia.

The Project is financed under the International Climate Initiative by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), facilitated through the KfW German Development Bank, and implemented by Wetlands International in partnership with the Institute of Forest Science of the Russian Academy of Sciences, Michael Succow Foundation and the Institute of Botany and Landscape Biology, Greifswald University in cooperation with the Ministry of Natural Resources and Environment of the Russian Federation and the Governments of Moscow, Nizhny Novgorod, Ryazan, Tver and Vladimir provinces.

For more information please visit our web page: https://russia.wetlands.org/

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