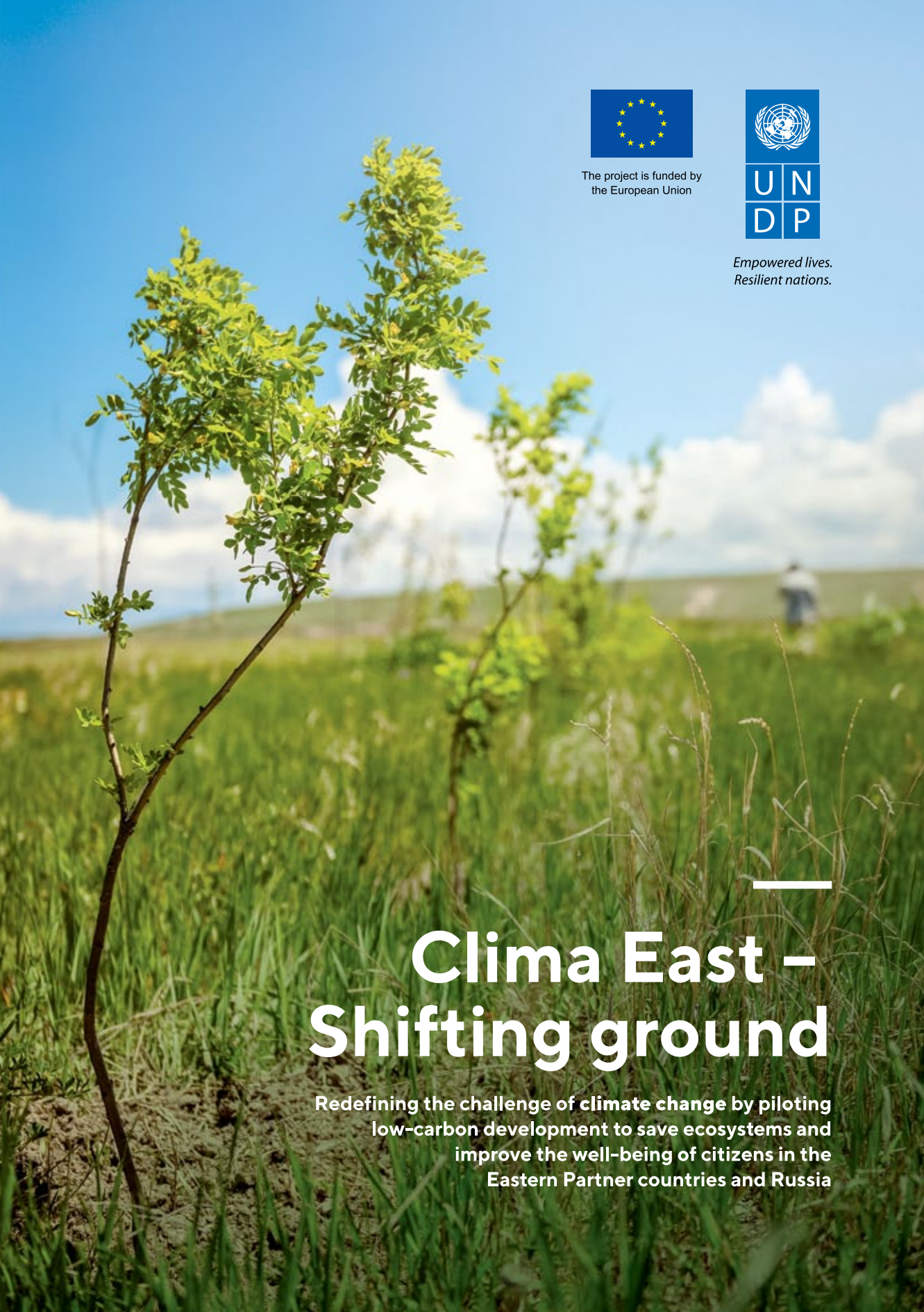

The project is funded by the European Union

*Empowered lives.*
*Resilient nations.*

# Clima East – Shifting ground

**Redefining the challenge of climate change by piloting low-carbon development to save ecosystems and improve the well-being of citizens in the Eastern Partner countries and Russia**

# Clima East – Shifting ground

Redefining the challenge of **climate change** by piloting low-carbon development to save ecosystems and improve the well-being of citizens in the Eastern Partner countries and Russia

The project is funded by the European Union

ClimaEast

UNDP

*Empowered lives. Resilient nations.*

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We would like to thank representatives of the European Commission in Brussels and their local delegations, as well as UNDP Offices in each country and in the Regional Hub in Istanbul, for contributing valuable insights and thoughtful editing support, as well as for guiding and assisting throughout the 5 years of Clima East Pilots implementation.

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# Table of Contents

# Foreword

The European Union and its six Eastern neighbours - Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, and Ukraine - have a shared vision of low-carbon development and resource-efficient economies. The ratification of the 2016 Paris Agreement on Climate Change by the European Union and all six Eastern Partner countries proves our strong commitment to translating this vision into policy and onward into concrete actions on the ground. Successful implementation will require a fundamental shift in technology, energy, economics, finance, and ultimately society as a whole. For the EU and the Eastern Partner countries, it will also provide important opportunities, notably for economic growth and improved livelihoods.

Since 2011, the EU-funded Clima East pilot projects have worked to explore positive-sum solutions associated with low-carbon development in the Eastern Partner countries and Russia. The pilots have demonstrated how rehabilitating ecosystems can also reduce greenhouse gas emissions, and at the same time improve the lives of the people who depend on these ecosystems. The pilots have also helped introduce innovative technologies and advanced scientific research. Working within a comprehensive framework, the EU-funded Clima East Policy project also supported participating countries to foster improved climate change policies, strategies, and market mechanisms.



The activities and results of the Clima East pilots are presented in this final report. The pilots have helped decrease greenhouse gas emissions through the restoration of pasturelands in Armenia, Azerbaijan, Georgia, Moldova, peatlands in Russia and Ukraine, forests in Armenia, Moldova and Russia, as well as by replacing fossil fuel with biomass production in Belarus. Through these activities, they have also helped improve the lives of regular people - cattle producers, sheep-herders, farm-owners, and children in schools where biomass heating boilers were installed.

Looking to the future, the EU continues to be committed to support its Eastern neighbours with reforms and investments needed for low-carbon development and to improve the well-being of citizens across the region.

**Lawrence Meredith**

*Director for the Eastern Neighbourhood, European Commission*

*Bolshezemelskaya tundra,*
*Nenets district, Northern Russia*

# Introduction

# Climate Change challenges in the region



There is no country in the world that is not experiencing first-hand the drastic effects of climate change. Greenhouse gas emissions continue to rise, and are now more than 50 percent higher than their 1990 level. As Eastern Europe and Central Asia are not major greenhouse gas emitters, they are suffering disproportionately from the consequences of climate change.

Impacts of climate change – such as increased droughts and erratic weather – threaten to undermine decades of development gains and put at risk efforts to eradicate poverty. Floods in Georgia, and severe droughts in Moldova and southern Ukraine, inflict major agricultural losses. Armenia is experiencing more erratic rainfall, while Belarus, Azerbaijan, and Russia are experiencing a variety of challenging climate change impacts.

To address these impacts, people across the region have mobilized to cut greenhouse gas emissions, save lives, and help communities cope. Unprecedented steps have been taken in the peatlands of Belarus to keep carbon safely stored in the ground. Georgia now has sophisticated early warning systems and better pasture management plans. In Russia, Belarus, and Ukraine, 39,650ha of peatlands, which comprise the world's largest store of peatland carbon, have been rehabilitated.

Rural development results include over 65,000 individuals with improved livelihoods as a direct economic benefit of Clima East programming. In addition, over 92,000 individuals have secured social benefits (i.e. benefits other than direct economic benefits) across the seven participating countries.

*More than 3,000ha of summer pastures restored, preserving and protecting farmlands and establishing sustainable land management, Azerbaijan*

*Wild reindeer, Northern Russia*

Overall, lands totaling 17,700ha have had ecosystem services enhanced, restored, and secured over the seven countries, and an additional 12,000+ hectares are scheduled for planned restoration and/or enhancement activities.



## Clima East

Clima East has been a European Union-funded project package assisting the Eastern Partnership countries and Russia in developing approaches to climate change mitigation and adaptation (*http://www.climaeast.eu/*). The seven countries involved, Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, and Ukraine, have worked to complement the ecosystem-based climate change mitigation and adaptation activities of UNDP, the Global Environment Facility, and regional partners, as well as local-level initiatives.

The Clima East project package funded by the European Commission consisted of two components: the first, implemented and supported by UNDP, consisted of a number of Pilot Projects that supported the development of ecosystems-based approaches to climate change. The second was a Policy component that sought to foster improved climate change policies, strategies, and market mechanisms in the partner countries by supporting regional co-operation and improving information access to EU climate change policies, laws, and expertise.

Implementation of the two components is separate but closely linked, and derived policy lessons from the experience of the pilots aimed to support the use of policy measures to effectively replicate and build on relevant aspects of pilot actions.

# Clima East Pilot Projects

## UKRAINE

Improved peatlands management through landscape planning approach in **Nizhyn rayon**

## BELARUS

Peatlands conservation and sustainable use in **Zvanec and Sporaŭski Reserves**

## MOLDOVA

Pasture and community forest restoration in **Orhei National Park**

## ARMENIA

Pasture restoration and forest rehabilitation in **Gegharkunik region incl. Sevan National Park**

200 km

## RUSSIA

Protection and restoration of forest and peatland permafrost carbon pools in **Nenetsky Autonomous Okrug**

## RUSSIA

Protection and restoration of forest and peatland permafrost carbon pools in **Komi Republic**

## RUSSIA

Steppe peatland restoration and protection, **Republic of Bashkortostan**



## GEORGIA

Restoration of pastures through sustainable management in Dedoplistskaro Region, **Vashlovani Protected areas**

## AZERBAIJAN

Pasture Rehabilitation and Restoration in **Ismayilli region**

*Reindeer in Bolshezemelskaya tundra, Northern Russia*

**The Clima East Pilot Project was broken down into 4 components and further into 9 constituting elements, each managed by a separate country office of UNDP, with both Northern and Southern Russia managed by UNDP Russia.**

# Clima East Pilot Project Initiative – Summary



Beginning in 2012, the EU-funded, UNDP-supported Clima East team worked in Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, and Ukraine in developing approaches for climate change mitigation and adaptation. Supporting eight Pilot projects across the region, the main aim of the Clima East Pilot Project initiative was to help countries in Central Asia, Western CIS, and the Caucasus to adapt to climate change.

One important area of results for the Clima East Pilot Project related to assessments and monitoring of carbon stocks and fluxes in the peatland and pastures ecosystems targeted. The Clima East Pilot Project has worked to show that intact ecosystems can have a strong and cost-effective positive effect both on climate change mitigation and adaptation. The Clima East Pilot Project has demonstrated how valuable an integrated approach with strong regional co-operation can be. The Clima East pilot projects have also served to showcase the imperative of an ecosystem-based approach – which combines issues of rural development, sustainable land management, and sustainable livelihoods – to establish community-centred solutions to climate change.

The impacts of the **Clima East Pilot Project** include:

- Avoided emissions of GHGs by: replacing fossil fuel with biomass (Belarus), through the restoration of peatlands (Russia, Ukraine) forests (Russia, Moldova, Armenia) and pasturelands (Armenia, Azerbaijan, Georgia, Moldova);
- Retained and/or improved carbon capacity of the pilot area of each pilot project;


Belarus

## Peatlands component

- Belarus peatlands conservation and restoration
- Ukraine peatlands conservation and restoration
- Russia steppe peatlands restoration


Southern Russia

## Permafrost and boreal forests component

- Russia permafrost peatlands and boreal forests in Komi and Nenets Autonomous Okrug


Azerbaijan

## Southern pastures and forest management

- Moldova ecosystem-based approaches to climate change in Orhei National Park
- Azerbaijan pastures restoration and protection
- Georgia pastures restoration and protection
- Armenia pastures restoration and protection


Armenia

## Global

- Global component on technical knowledge generation and sharing, evaluation, and awareness raising

- Improved protection status of areas important to globally and regionally significant ecosystems in Ukraine, Belarus, Moldova, Georgia and Russia;
- Improved sustainable land use practices in pilot areas, working with the communities involved in their use;
- Improved productivity from cattle production (Armenia, Azerbaijan) and improved sustainable livelihoods of sheep-herders (Georgia) to balance the pressures on pastures with the needs of the communities dependent on the pastures; and
- Advancing research on permafrost ecosystems (Russia) — resulting in advanced knowledge of possibilities and technologies to slow down permafrost melt.

## Climate change challenge in the Eastern Partnership region

In October 2016, the Ministers for Environment of the EU Member States, the Ministers for Environment of the Eastern Partnership (EaP) countries, the EU Commissioner for Environment and the EU Commissioner for the European Neighbourhood Policy and Enlargement gathered in Luxembourg and confirmed their commitment to address the challenges facing the region from climate change and environmental hazards, issuing the Declaration on Cooperation on Environment and Climate Change in the Eastern Partnership.

The Declaration recognised the ever-growing scientific consensus around the threats posed by climate change. It highlighted the need for action at regional and national levels and in the context of international co-operation, both within the EaP and globally - for example through the United Nations Framework Convention on Climate Change (UNFCCC). The Ministers stressed that 'environmental and climate challenges are transboundary and interdependent by nature, and therefore require a holistic approach to address them' and that 'strengthened transboundary co-operation and joint action on air, forests, land and soil, nature and biodiversity and water resources, including seas, are needed'.



*The project established 14 new protected areas with a combined area of 1900ha in the Republic of Bashkortostan, Southern Russia*

*Mountain forests and rangelands are important, productive assets for Armenia's population*

This call to action responds to the evidence that continues to accumulate on the man-made nature of climate change and of the critical need to reduce greenhouse gas (GHG) emissions to avoid catastrophic effects on the lives and livelihoods of people across the world.

Tackling climate change requires both mitigation efforts (efforts to reduce GHG emissions and minimise climate change) and adaptation actions (adjustments to accommodate the current and future effects of climate change). The international community has reached consensus on a core goal to reduce emissions sufficiently to keep overall global warming to less than 2° Celsius over pre-industrial levels, seen as a watershed level to try to avoid catastrophic climate change. But this will require massive, global efforts. The economy of many parts of the EaP region - both EU and Partner Countries - has historically grown through heavy industry and mechanisation, contributing in a significant way to historic and current emissions. Other areas have seen less industrialisation, but all countries have a part to play in mitigating climate change in the future, recognising the impact that each nation's choices – on energy production and use, infrastructure and transport investments, industrial development, agricultural systems, and other policies - have on GHG emissions, and the way that choices on the use of resources and the landscape affect opportunities to extract and store some GHGs and prevent them from entering the atmosphere. It is important in each sector and region to understand and plan to adapt to likely effects of climate change with a good basis in data, and with modelling tools to inform decisions. From the top down, a co-ordinating framework is crucial, with clear leadership to ensure that overarching economic and social development is attained while achieving emissions reduction targets.

The European Union funded the Clima East project package between 2012 and 2017 to support these efforts to tackle climate change nationally and in partnership and dialogue within the Eastern Partnership region.

Ecosystems such as peatlands, permafrost landscapes, boreal forests, and pastureland have a vital role to play in climate change mitigation and adaptation. They also support the resilience of local communities that are dependent on natural resources.

# Ecosystem Approach

An **ecosystem approach** is an integrated strategy for the management of land, water, and natural resources. It is an equitable approach to conservation and sustainable use which recognises the full array of interactions within an ecosystem. For the Clima East Pilots, this approach was applied in three different types of ecosystems – peatlands, pasturelands, and forests – with the participation of local communities.

## Air Quality

Air quality is improved when cleaner, more sustainable, and less carbon-intensive energy sources are used. An ecosystem approach can help bolster development with reliable and modern energy.

## Peatlands

With great significance as carbon reservoirs, peatlands play an important role in the carbon cycle.

## Pasturelands

Overgrazing is a leading cause of pasture degradation, exacerbated by climate change. Overgrazing has negative consequences for the broader ecosystem and the farming communities that depend on them.



## Forests

Forest rehabilitation and restoration efforts have significant co-benefits, as they contribute to both climate change adaptation and mitigation.

## Rural Development

Ideally, an interaction between people, nature, and economy. The projects' rigorous poverty eradication efforts address the connection between climate change and poverty.

## Natural Environment

An ecosystem approach takes into consideration how biodiversity conservation can reduce threats and improve the status of key species.

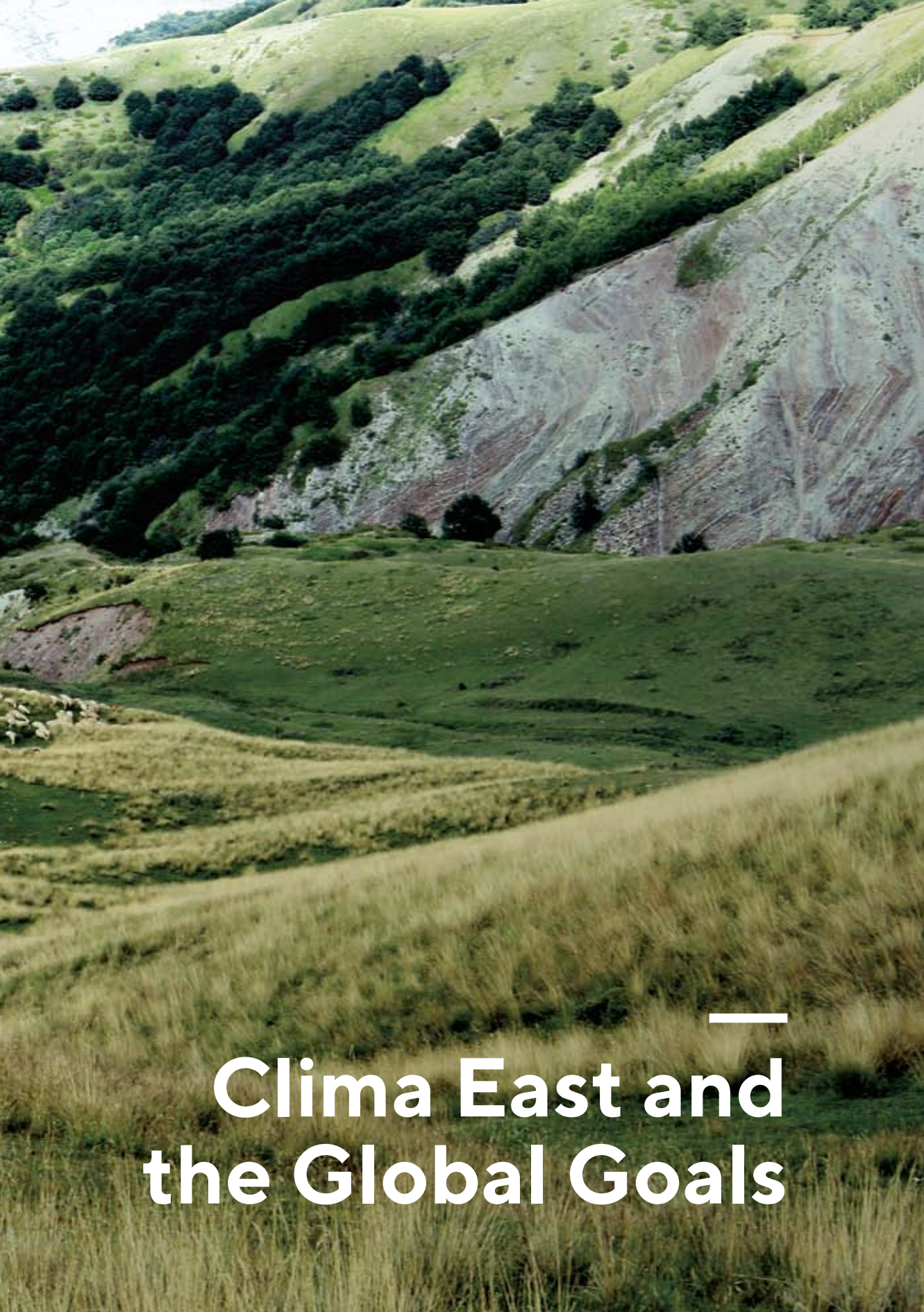
## Resilient Landscapes

Sustainable Land Management offers enhanced land and water ecosystem services.

## Carbon Sequestration

Without protection, the millennia-old carbon reservoirs could create a positive feedback loop contributing to climate change.

*Selim Soltan summer pastures of Ismayilli region, Azerbaijan*



# Clima East and the Global Goals


# 17 Goals to Transform Our World



In September 2015, following a multi-year deliberative consensus-building process with input from all 193 UN Member States, world leaders adopted the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs). Universal, inclusive, and indivisible, the Agenda calls for action by all countries to improve the lives of people everywhere. These 17 goals, encompassing 169 targets in service of poverty and hunger alleviation, health and education improvements, rendering cities more sustainable, mitigating climate change, and protecting the environment, are designed to transform our world.

Several of these goals have special resonance for the Clima East project, both through its pilot projects which supported the development of ecosystems-based approaches to climate change in partner countries, as well as through the project's emphasis on improved climate change policies, strategies, and market mechanisms which support regional co-operation and improve informational access to EU climate change policies, laws, and expertise.

The Clima East Pilot Project implemented actions in seven UN Member States across the Eastern Neighbourhood countries and Russia, with initiatives on sustainable management of pastures and forests, conservation of peatlands, protected area designation and conservation, and restoring permafrost carbon pools. These local- and national-level project goals overlap with five of the SDG 'Global Goals' – a reminder of the utility of thinking globally and acting locally. The consonance between the global goals, the wider Clima East initiative, and individual projects is worth examining in greater detail.


1 NO POVERTY

*A local dairy co-operative was established, improving livelihoods through direct economic benefits, Kukshin village, Ukraine*

**SDG 1** aims to end poverty in all its forms everywhere. It specifically targets equal rights to access and manage economic and social resources and services, and building the resilience of the poor to climate-related events.

Clima East pilot projects, with their emphasis on sustainable development, represent a durable response to poverty. In the Southern Russia Steppe peatlands project, the economically vital ecosystem services represented by peatlands had not previously been accounted for; the project worked to upload peatland data for use in new territorial development plans, preserving the environment at the same time as it encourages sustainable poverty alleviation. Target 1.5 aims to build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters. In Georgia, the trainings and support for local farmers and sheep breeders in sustainable land and grazing practices increased their capacity for natural resource management, thereby increasing resilience to natural disasters.


*To support the collection of current climate data, two automatic meteorological stations were installed, Georgia*

**SDG 7** endeavours to secure access to affordable, reliable, sustainable, and modern energy for all. Clima East pilots introduced new rangeland management techniques in Armenia, Azerbaijan, and Georgia, which include tactics such as living fences and solar-powered electric enclosures for animals. Ukraine's peatlands restoration, on sites which previously utilised peat as a low-cost – but unsustainable and carbon-intensive – energy source, helped to bolster development with reliable and modern energy.


*An ecopath in Sporaŭskaje fen in winter, Belarus*

**SDG 8** promotes sustained, inclusive, and sustainable economic growth via full and productive employment and decent work. One avenue for this growth includes Target 8.2, which employs diversification of the economy along with upgrading technologies and innovation. In Belarus, at the Sporaŭskaje Biological reserve - a Clima East Pilot Project site and home to one of the biggest lowland bogs in Europe – innovative technologies for the minimisation of carbon emissions were tested, estimating soil carbon stocks, measuring greenhouse gas emissions, and developing biomass fuels. These strategies encourage employment and innovation at the local level, and can be reproduced across similar biomes.

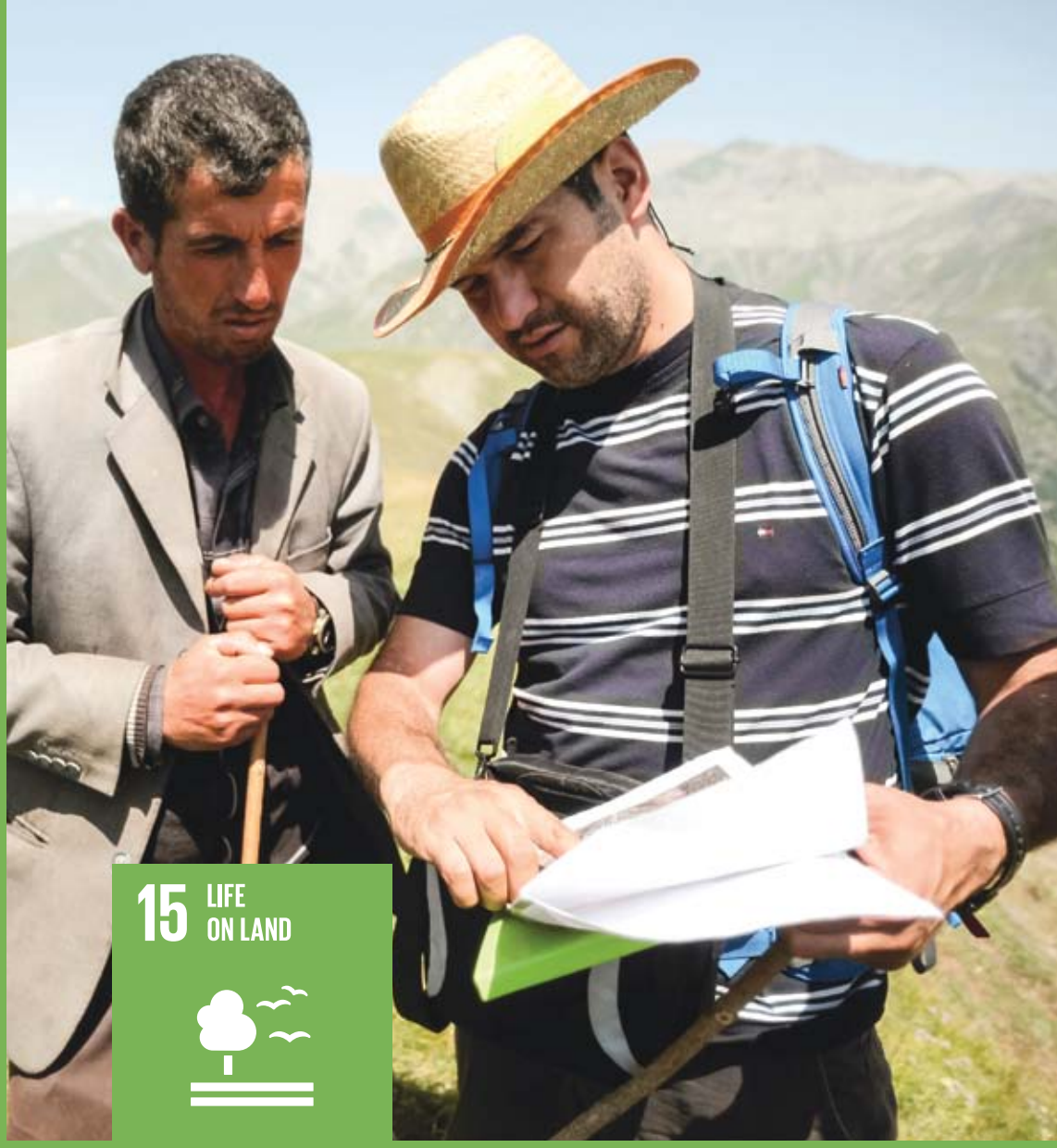

*Old Orhei, Moldova*

**SDG 11** deals with rendering cities and human settlements inclusive, safe, resilient, and sustainable. Target 11.A supports positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning. The Clima East project prioritised policy dialogue, ensuring that climate change resilience and environmental sustainability policies were incorporated into national and local development plans. To support this objective, the Clima East Policy Project provided targeted technical expertise to support selected tasks and fill particular capacity gaps identified by Partner Countries as key to achieving their national policy priorities in relation to climate change. The Policy Project also facilitated multilateral co-operation and mutual exchange of approaches and best practice among the EU and the Partner Countries and, where relevant, supported individual Partner Countries to adopt aspects of EU climate change policy in line with commitments under existing or forthcoming Association Agreements with the European Union. These policy-related activities also addressed Target 11.B, which aims to substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement.


*Pasture grants awarding ceremony, Orhei National Park, Moldova*

**SDG 13,** which entreats us to take urgent action to combat climate change and its impacts, is a particular focus of the Clima East project. Climate change is causing long-lasting changes to our climate system, which threatens irreversible consequences if we do not take action now.

Moldova implemented ecosystem-based climate change mitigation and adaptation activities in its newly designated Orhei National Park – the country's first such protected area. Azerbaijan incorporated modules on climate and environment into its 'pasture curricula' for training livestock specialists. Armenia planted 18,000 mature seedlings to establish a mixed stand of climate-resilient trees, creating a new forest belt which mitigates heavy winds. Northern Russia's project included workshops on nature protection and climate change adaptation activities for firefighters, hunters and fishers, and students. Target 13.2, which works to integrate climate change measures into national policies, strategies and planning, were a particular focus of the Clima East Policy Project.




*Discussing border demaracation with a local shepherd, Azerbaijan*

**SDG 15** recognizes that human life depends on the earth as much as the ocean for our sustenance and livelihoods. Plant life provides 80 percent of our human diet, and we rely on agriculture as an important economic resource and means of development. Forests cover over 30 percent of the Earth's land surface, providing vital habitats for millions of species and important sources for clean air and water, as well as being crucial for combating climate change.

Today we are seeing unprecedented land degradation, and the loss of arable land at 30 to 35 times the historical rate. In Armenia, Azerbaijan and Georgia the Clima East Pilot Project worked to teach and establish sustainable pasture management practices, improve the fertility of pastures and forests and prevent soil erosion and landslides.


*Ecoforum, Southern Russia*

**SDG 17** aims to strengthen the means of implementation and revitalise the global partnership for sustainable development. The SDGs can only be realised with a strong commitment to global partnership and co-operation. While official development assistance from developed countries increased by 66 percent between 2000 and 2014, humanitarian crises brought on by conflict or natural disasters continue to demand more financial resources and aid. The world today is more interconnected than ever before. Improving access to technology and knowledge is an important way to share ideas and foster innovation. Co-ordinating policies to help developing countries manage their debt, as well as promoting investment for the least developed, is vital to achieve sustainable growth and development.

In service of achieving this goal, the Clima East Pilot Project supported the development of ecosystems-based approaches to climate change mitigation and adaptation – and showcased what is possible when there is co-operation between countries on knowledge and technology sharing, and in promoting environmentally sound technologies.

## Achieving the SDGs

As former UNDP Administrator Helen Clark noted, 'climate action needs to be integrated into all development planning'. The climate-focussed initiatives of the Clima East project are part of the global drive to achieve the SDGs. To close with Administrator Clark's words: 'Our world has the resources, technology, and knowledge to rise to the climate and sustainable development challenges. Now these must be applied to implementation of a new climate agreement and the SDGs'.

# Livelihoods & Community Involvement

## Rural Development

Rural development results include **over 65,000 individuals with improved livelihoods** as a direct economic benefit of Clima East Pilot Project programming. In addition, **over 92,000 individuals have secured social benefits** (i.e. benefits other than direct economic benefits) across the seven participating countries.

Number of **people with improved livelihoods** (direct economic benefit)

**6,000**

**16 households + 10 families** from Buriovdal municipality

**8,000**

**15 farm owners**

**20,800**

**30,000**

**650**

TOTAL:
**over 65,000 individuals**



Number of **people with social benefits** (benefits other than economic benefits)

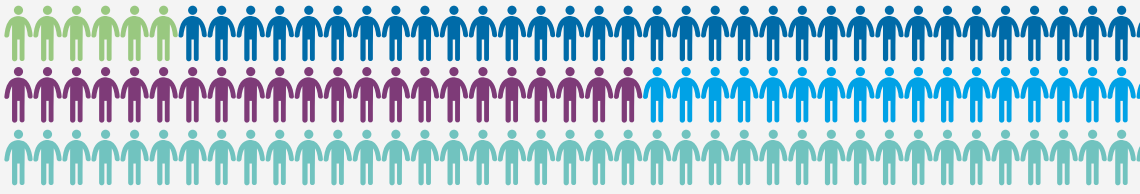
**7,400**

**16 households + 10 families** from Buriovdal municipality

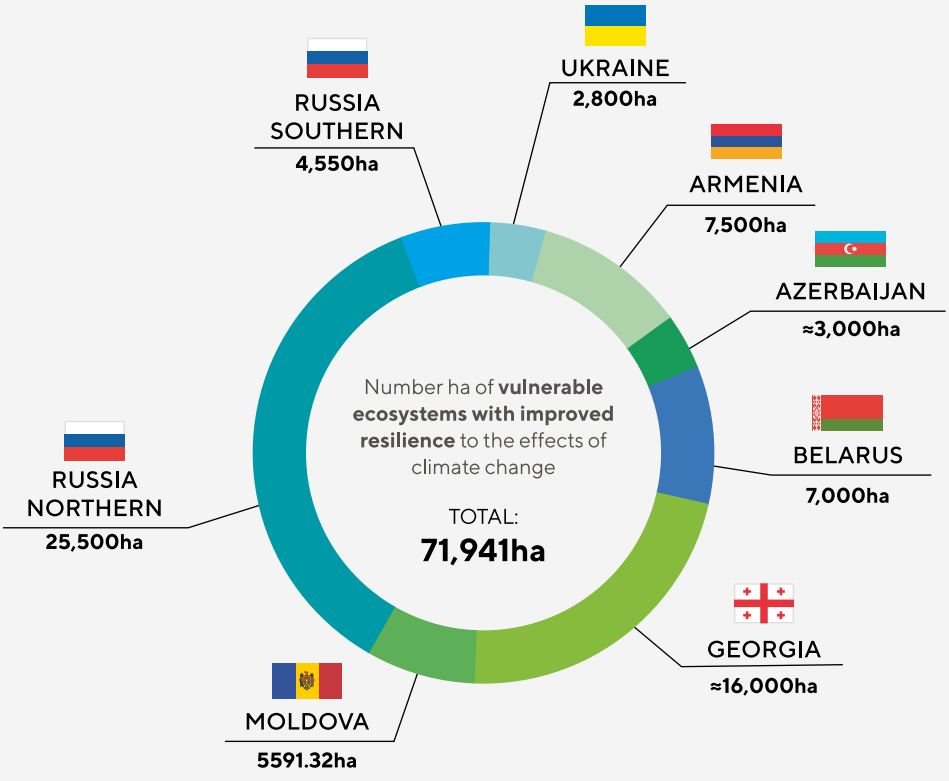
at least **8 people**

**85,000** (including children in schools with installed heating boilers, people with improved health, etc.)

TOTAL:
**over 92,000 individuals**



ARMENIA AZERBAIJAN BELARUS GEORGIA MOLDOVA





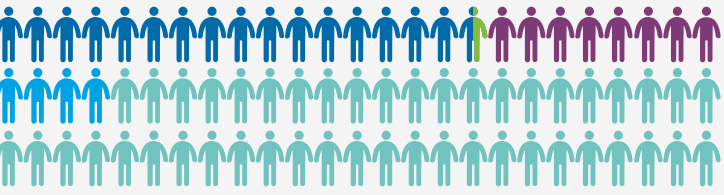

## Climate Change Adaptation

Under the climate change adaptation results area, **nearly 72,000 hectares of vulnerable ecosystems** now enjoy improved resilience to climate change. As a consequence of Clima East Pilot Project adaptation efforts, **over 192,000 people** in the seven countries **have reduced vulnerability to the negative impacts of climate change.**

**6,000**
**50,000**

**60** (on average 4–5 people per farm. 15 farms in total)
**30,000**

**1,608** (in 4 surrounding villages)
**+20,000** (Nature park visitors in summer)
**85,000**



Number of **people with reduced vulnerability to negative climate change impacts**

TOTAL:
**over 192,000 people**

RUSSIA NORTHERN
RUSSIA SOUTHERN
UKRAINE
= 1,000 people

# Clima East and the Paris Agreement

*Studying carbon flux from peatlands, Southern Russia*

# The Paris Agreement

The Paris Agreement is an unprecedented accord signed by 195 national parties to the United Nations Framework Convention on Climate Change. It aims to do three things:

- limit global warming well below 2°C and as close to 1.5°C as possible
- increase our ability to adapt to extreme climate conditions and to reduce greenhouse emissions
- increase financing to these ends

This historic political agreement to tackle climate change will strengthen international stability and security, save lives, and improve human well-being. The Agreement can be considered a roadmap, highlighting the milestones that have to be achieved on the path towards zero-carbon, sustainable development. Though the Paris Agreement was an historic achievement which outlines the path forward, only action will deliver results; countries must make every effort to achieve the ambition of Paris.

# Clima East and the Paris Agreement

The Clima East Pilot Project was initiated during a crucial period in international efforts to combat climate change, as preparations got underway to reach consensus on a new global climate agreement under the UNFCCC to succeed the Kyoto Protocol (KP). Signed by 192 Parties in 2005, the KP set out the emissions control regime in force from 2008 until 2020; its successor agreement in Paris spells out the actions which must be taken after Kyoto's second commitment period ends in 2020.

*Reindeer in Bolshezemelskaya tundra, Northern Russia*



# How has the Clima East Pilot Project helped partners to prepare for and implement the Paris Agreement?

The main aim of the Clima East Pilot Project was to help countries in Central Asia, Western CIS, and the Caucasus to adapt to climate change, and to reach mitigation targets that are crucial in implementing the Paris Agreement.

With the objective to support the design and application of sustainable land management practices and improving pasture/soil conditions in selected target zones - these efforts in turn led to enhanced $CO_2$ sequestration and absorption by the grasslands, peatlands, forests and pasturelands.

By establishing new forests and rehabilitating the existing ones, the project worked to preserve and enhance existing carbon stocks.

Additionally, the Clima East Pilot Project applied a range of carbon monitoring techniques and methodologies to assess existing carbon stocks.

Assessment of organic carbon stock in soil and vegetation was carried out on pilot forest and pasture rehabilitation plots, as well as permafrost peatlands through soil and vegetation sampling and lab analysis.

Specifically, the pilot projects ensured that the participating countries were able to achieve the **targets** that they have set. For example:

## Armenia

- The Republic of Armenia strives to achieve ecosystem neutral GHG emissions in 2050 (2.07 tonnes/per capita annual) with the support of adequate, necessary, and sufficient international financial, technological and capacity building assistance.
- In case of non-exceeding its total emissions quota (633 million tonnes) set for the period of 2015-2050 Armenia can credit non-utilised reductions to carbon markets, or transfer them to the balance of emissions limitation envisaged for the period of 2050-2100.

## Georgia

- Georgia plans to unconditionally reduce its GHG emissions by 15% below the Business As Usual scenario (BAU) for the year 2030.
- The 15% reduction target will be increased up to 25% in a conditional manner, subject to a global agreement addressing the importance of technical co-operation, access to low-cost financial resources and technology transfer.

## Republic of Moldova

- The Republic of Moldova intends to achieve an economy-wide unconditional target of reducing its greenhouse gas emissions by 64-67 per cent below its 1990 level in 2030 and to make best efforts to reduce its emissions by 67 per cent.
- The reduction commitment expressed above could be increased up to 78 per cent below 1990 levels, conditioned on a global agreement addressing important topics including low-cost financial resources, technology transfer, and technical co-operation.

## Azerbaijan

- By 2030 the Republic of Azerbaijan targets 35% reduction in the level of greenhouse gas emissions compared to a base year of 1990 as its contribution to global climate change efforts.

## Belarus

- Belarus commits to reducing GHG emissions 28% below 1990 levels, excluding Land Use, Land-Use Change, and Forestry (LULUCF).

## Russia

- Limiting anthropogenic greenhouse gasses in Russia to 70–75% of 1990 levels by the year 2030 might be a long-term indicator, subject to the maximum possible account of absorbing capacity of forests.

## Ukraine

- Ukraine's emissions will not exceed 60% of 1990 GHG emissions level in 2030.
- Ukraine will participate actively in the development of existing international market mechanisms and implementation of new ones.



# Implementing the Paris Agreement (post June 2017)

UNDP will continue to partner with more than 140 countries to help them transform their economies and fulfil the goals they set out under the Paris Agreement. A wide variety of partners – from initiatives such as Clima East, to the Climate Funds, to the climate-conscious private sector, to civil society groups at the national and subnational levels – promote zero-carbon, resilient and inclusive economic growth that will create quality jobs and markets for 21st century prosperity. UNDP will continue working with these partners and national governments who want to engage in ambitious climate action.

# Natural Environment & Carbon Assessment

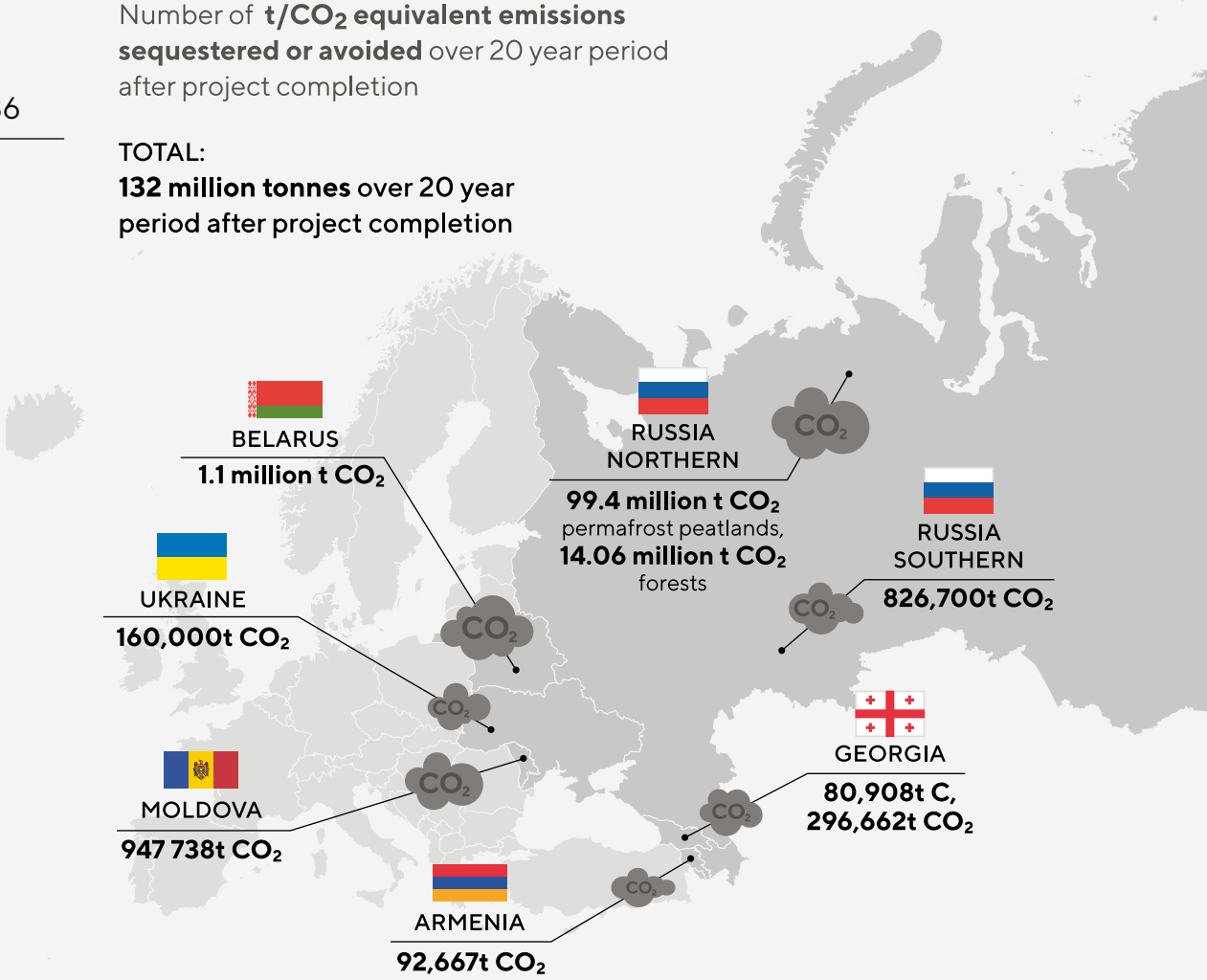
## Climate Change Mitigation

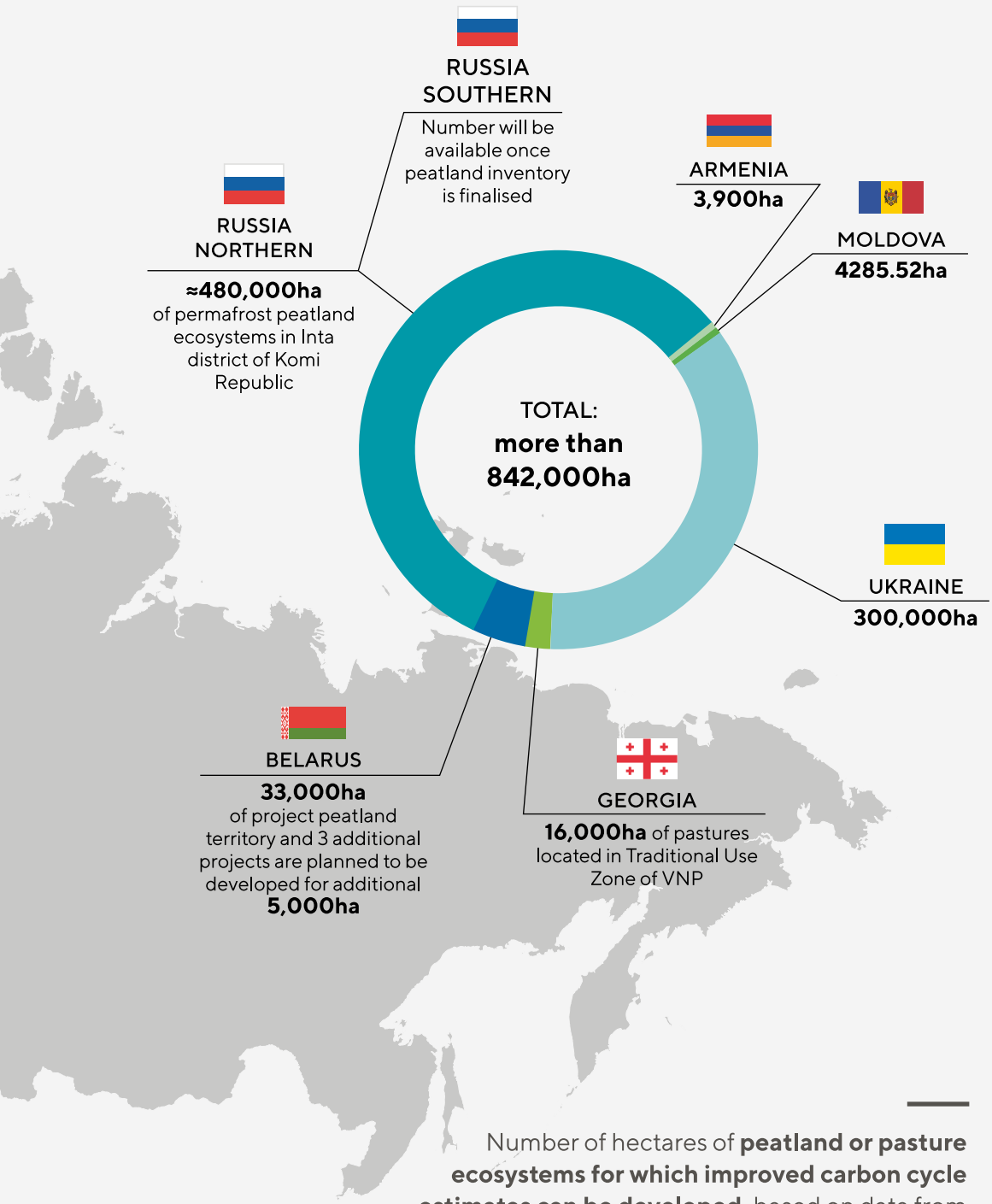
Under the climate change mitigation results area, **greenhouse gasses equivalent to 132 million tonnes of $CO_2$** were projected to be sequestered or avoided over the 20-year period after Clima East Pilot Project completion, through protection of peatlands, pastures, and other vital ecosystems. In addition, **more than 842,000 hectares of lands** in the seven countries are now covered by carbon cycle estimates, based on data from pilot project field monitoring.

Number of **t/$CO_2$ equivalent emissions sequestered or avoided** over 20 year period after project completion



TOTAL:
**132 million tonnes** over 20 year period after project completion





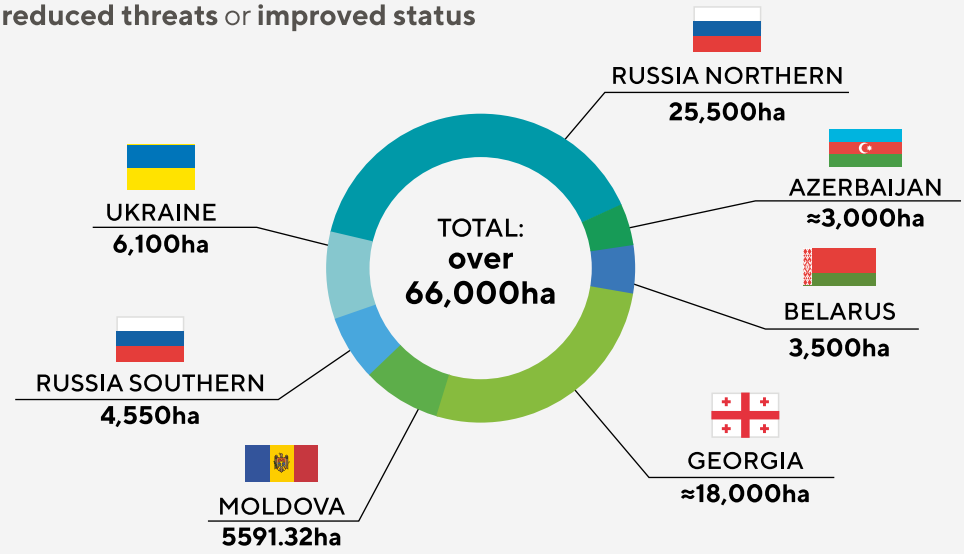



Number of hectares of **peatland or pasture ecosystems for which improved carbon cycle estimates can be developed,** based on data from pilot project field monitoring

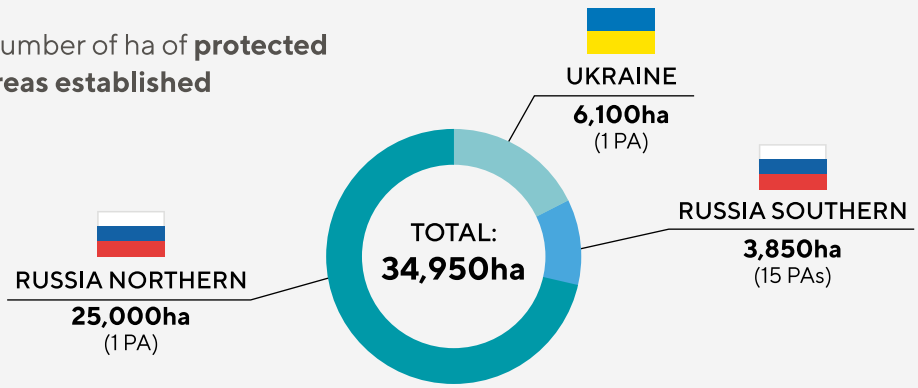
# Biodiversity Conservation

Through the Clima East Pilot Project biodiversity conservation programme activities, **over 93,000 hectares of key ecosystems** have either reduced climate-related threats and/or improved their biodiversity status. As a result, at least **57 key species,** including numerous International Union for Conservation of Nature and Natural Resources (IUCN) Red List 'Threatened' species of flora and fauna. **Nearly 35,000 hectares of newly protected areas were established** in service of biodiversity conservation goals, and **over 1,787,000 hectares of previously protected areas** were supplemented with improved management, trainings, and participation of specialists.

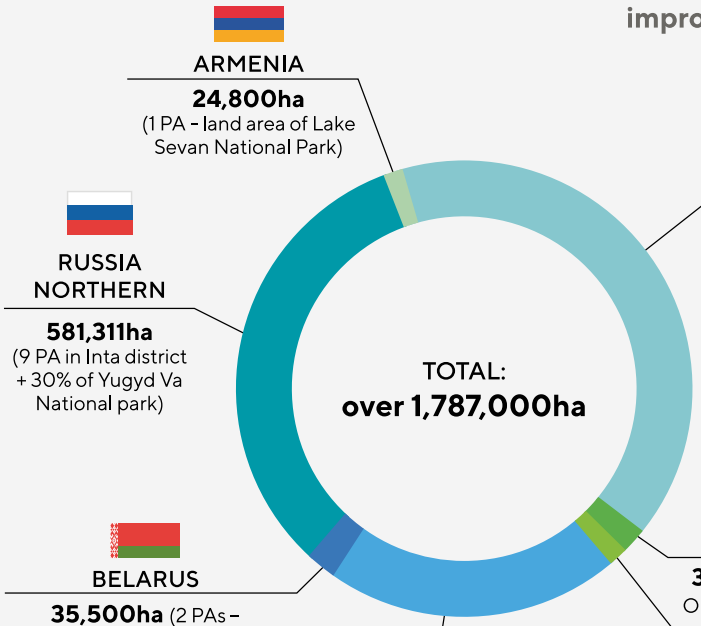
Number of ha of **key ecosystems with reduced threats** or **improved status**




Number of ha of **protected areas established**



## Number of ha of **protected areas with improved management**




**ARMENIA**
**24,800ha**
(1 PA – land area of Lake Sevan National Park)

**UKRAINE**
**700,000ha**
(series of trainings on protected areas management were conducted with participation of specialists from many parks and reserves)

**RUSSIA NORTHERN**
**581,311ha**
(9 PA in Inta district + 30% of Yugyd Va National park)

**MOLDOVA**
**33,792ha** (1 PA – Orhei National Park)

**BELARUS**
**35,500ha** (2 PAs – Zvanec and Sporovo Special Protected Areas)

**GEORGIA**
**25,000ha**
(Vashlovani National Park)

**RUSSIA SOUTHERN**
**2,550ha** (various existed PAs with total square **385,000ha** in Republic of Bashkortostan that include peatland ecosystems)

## Number of **key species with reduced threats** or **improved status**

**RUSSIA NORTHERN**
**30 Red List species** including mosses – *Myurella sibirica, Dicranum drummondii, Pohlia ludwigii,* lichens – *Lobaria pulmonaria, Lichenomphalina hudsoniana,* vascular plants – *Paeonia anomala* birds – *Gavia stellata,Pandion haliaetus,Cygnus bewicki, Grus grus,* animals – *Rangifer tarandus et al.*

**UKRAINE**
**Key species** *(Ostericum palustre (Bess.) Hoffm., Galanthus nivalis L., Lilium martagon L., Dactylorhiza majalis (Reichenb.) P.F.Hunt et Summerhayes, Botrychium multifidum (S.G.Gmel.), Eudontomyzon mariae Berg, Lanius excubitor L, Crex crex L )*

TOTAL:
**at least 57 species**

**BELARUS**
**3 Red List species** (Aquatic warbler, Curlew, Great Snipe)

**RUSSIA SOUTHERN**
At least **3** of **significant peatland** or **peatland-dependent species** with reduced threats or improved status (pelican, swans (2 species), geese (3 species), ducks (at least 5 species), waders (at least 3 species) and gulls (2 species), plants)

*Vashlovani Badlands, Georgia*

# Pilot Project Profiles



# Clima East Pilot Project in Armenia

*Sustainable Management of pastures and forests in Armenia to demonstrate climate change mitigation and adaptation benefits and dividends for local communities*


LOCATION:
Vardenis subregion of
Gegharkunik Marz, Armenia

Containing more than half the region's floral diversity and over 300 species of trees and bushes, Armenia's forest ecosystems form a vital eco-corridor that extends through the Eastern Lesser Caucasus. Although these forests are a biodiversity hotspot and a global conservation priority, the region has been identified as critically vulnerable, especially to the risks posed by climate change.

The mountain forests and rangelands are an important, productive asset for Armenia's population - 50 percent of whom live in rural communities and are largely dependent on the goods and services these ecosystems provide. These services ensure human well-being and economic development, including agriculture, which currently accounts for 23 percent of Armenia's GDP.

^
*Planting new seedlings as part of the forest belt establishment process in Tsovak community*

<
*Moving livestock through the Tsovak community pasture, October 2013, before project intervention*

v
*Coppice forest rehabilitation team, comprised of local residents, working to restore the degraded forest*



However, unsustainable forest management and land use, coupled with poor agricultural practices, exacerbate aridification, and also contribute to the depletion of carbon sinks. As a result, natural rangelands, covering ≈1,244,000ha and comprising >40% of Armenia's land area, have suffered serious degradation. Biological productivity has fallen by 1.5 - 2 times since the 1950s, and currently only 10.4 percent of Armenia's territory is still forested.

## The Forest for the Trees

With EU funding and UNDP support, the Clima East Pilot Project in Armenia has been working to restore the degraded mountainous pastures and forests of Armenia. Acknowledging the high rates of rural poverty, the project worked to build capacity and bolster economic benefits for local communities through sustainably managing the land.

## Environmental Solutions for Social Issues

In the Gegharkunik region, the project established 34.2ha of new forest belts by planting 35,000 new seedlings, including indigenous and wild fruits. The trees planted were chosen to establish mixed forest stands which are more resilient to climate change - retaining biodiversity and building economic value.

Garik Hakobyan, Head of Tsovak Community Administration, working with the project team on reforestation efforts, noted, ***"The local residents are happy with the new forest belt establishment in the community, even those who initially did not believe in the vision we have had. Today local residents benefit by having additional temporary jobs while planting the seedlings, handling watering and maintenance. We believe that in the future, in addition to providing fruits and berries, the new community forest will protect the settlement from heavy winds."***

*Planting new seedlings in Sevan National Park*

*Rehabilitating field roads in Tsapatagh facilitates better access to summer pastures and helps fight erosion & overgrazing in winter pastures*



## On the road

Launched in five communities, summer pasture infrastructure and degraded winter pastures (field roads, stock watering points, mobile paddocks and shelters for shepherds) have been rehabilitated.

Improved road conditions allow cattle and sheep to move between summer and winter pastures, ensuring that winter pastures aren't overgrazed and limiting soil erosion as the livestock transit. Especially helpful for low and middle-income households, the project established six innovative solar powered mobile paddocks, constructed two stock watering points and supported the creation of three pasture users co-operatives facilitate access to summer pastures and increase the productivity of cattle.

*Solar powered electrified fence, Gegharkunik*

Working with Community Administrations, rotational grazing plans for five target communities have been developed and trainings for implementing the plans were held in all five communities. These plans are now serving to improve the management of 7,500ha of pastures.

***"The locals call the gorge path to remote pastures "the road of life". The road restoration solves a number of problems for local residents. Now it is easier to move the cattle to remote pastures and reach hayfields."***
— Taguhi Boyakhchyan, Head of the Tsapatagh Community Administration



## Saving the soil and sequestering carbon

By establishing new forests and rehabilitating the existing ones as well as reducing burden on winter pastures, the project also worked to identify and preserve existing carbon stocks. Recognising that the Republic of Armenia strives to achieve ecosystem-neutral GHG emissions in 2050, the project is also mitigating climate change by identifying and increasing ecosystem capacity for carbon se-

*Carbon monitoring lab analysis*

*Through sampling and lab analysis, the project has assessed organic carbon stock in select forest and pasture rehabilitation plots*

questration and establishing the infrastructure needed to conduct carbon monitoring and assessments.

Assessment of organic carbon stock in soil and vegetation was carried out on pilot forest and pasture rehabilitation plots through soil and vegetation sampling and lab analysis.

## Teaming up with the Small Grants Programme

To secure sustainability for these efforts, the project teamed up with the GEF Small Grants Programme (SGP) to join activities towards improving pasture management through advancing access to summer pastures. In co-operation with the GEF SGP project entitled 'Clima East Plus', three pasture-users co-operatives were established in the target area in 2016. Currently, 30 households with a cumulative 300 cows and calves joined the co-operatives, which have potential for enlargement. The GEF SGP project supported the co-operatives via the establishment of three milking and milk cooling stations in summer pastures, along with the provision of milking equipment and power generators. These activities have complemented and expanded the project by providing access to additional 500 hectares of summer pastures, thus reducing the burden on winter pastures.

Additionally, to diversify livelihood sources, the SGP project introduced climate-resilient crop-farming practices and other agro-ecological innovations.



*50 percent of population live in rural communities and are largely dependent on the goods and services these ecosystems provide*

*Mountain forests and rangelands are important, productive assets for Armenia's population*

*Successful evidence of coppicing, a traditional & highly effective method of woodland management*

# Armenia
# Clima East Pilot Project results:
# **Some quick facts**



In Armenia, the pilot project is **working to help farmers and pastoralists to adapt to climate change, improve their livelihoods, and mitigate climate change** by preserving existing carbon stocks.

In the Gegharkunik region, the pilot project has:

- **Established 34.2 hectares of new forest belts** (35,000 new seedlings), including 18.2 hectares of community forest;
- **Rehabilitated 25.8 hectares of degraded natural forest** in Juniper-Oak sanctuary, supported the natural regeneration of 7 hectares of degraded forest in Sevan National Park;
- **Supported the establishment of 3 pasture users co-operatives** for joint and efficient cattle grazing in summer pastures and increase of cattle productivity;
- **Improved access to 4,720 hectares of summer pastures** through rehabilitation of 32 km of field roads, establishment of 6 innovative solar-powered mobile paddocks and construction of 2 stock watering points, and
- **Introduced rotational grazing plans for 5 communities** improving the management of **7,500 hectares of pastures;**
- **Trained 58 local residents** of Gegharkunik Marz on sustainable management of mountain forest and pasture ecosystems under changing climate conditions.



# Clima East Pilot Project in Azerbaijan

*Ecosystem-based approaches to climate change*


LOCATION:
Shamakhi Region and
Ismayilli Region, Azerbaijan

The timeless rural villages of Azerbaijan boast lush orchards and grassy hillsides, ringed by the dramatic peaks of the Caucasus Mountains, but climate change is eroding that timelessness. Azerbaijan is a mountainous country on the western coast of the Caspian Sea, and is the home of the eastern terminus of the Greater Caucasus Mountains. These mountains contain the country's highest peaks, most extensive forests, and 50% of the country's pasturelands.

The Caucasus region and especially its mountain ranges with their predominating grasslands are rich in species, with many of them endemic to the region.

*"The more soil is grazed, the more the landslides happen... In September, when we leave for winter pastures, there cannot be found even a single green grass."*

— Murshud Mirzayev, Local shepherd in Burovdal, Ismayilli region

> *Murshud Mirzayev, Local shepherd in Burovdal, Ismayilli region*

^ *Under continuous and unsustainable grazing, pastures have less vegetation cover & broader ecosystem is weakened, allowing erosion to occur*

> *Over-grazing results in losses of organic carbon soil through wind and water erosion and soil impoverishment*

Overgrazing is one of the primary reasons that the pastures are being degraded, which has negative consequences for the broader ecosystem and the farming communities that depend on them; climate change is exacerbating this degradation.

*"These summer pastures in Azerbaijan are distinguished by their uniqueness. Not only unique as a resource for agricultural purposes, but also for the reason that people live there."*

— Ruslan Markof, Project expert

## Vibrant Pastures

With UNDP support and EU funding, the Clima East Pilot Project in Azerbaijan, *"Ecosystem-based approach to climate change",* is working to establish sustainable pasture management practices, improve the fertility of pastures and forests, and prevent soil erosion and landslides.

With the primary occupation in the Shamakhi and Ismayilli regions being sheep and cattle breeding, these were selected as the pilot areas because ecosystem-based adaptation is both economically and ecologically vital.

The project worked to support the rural communities in the pilot areas with improved fertility in pastures - preventing erosion and landslides. Project activities also worked to mobilise environmental financing and support the Republic of Azerbaijan's global climate change efforts. Specifically, their goal is to achieve a 35% reduction in greenhouse gas emissions by 2030. Sustainable forest-grassland management and the increase of carbon reserves - via improved soil conditions and land management practices - will lead to enhanced $CO_2$ sequestration and absorption by the grasslands.

To achieve these objectives, the project worked in three key areas: conducting inventory of the pasture areas to obtain a clear picture on soil/vegetation/carbon conditions; preparation and application of sustainable land management models across 3,000ha of selected pasture land; and design and application of a carbon flow monitoring mechanism to assess changes in carbon sequestration/absorption and avoided $CO_2$ emissions over time.



*Daily migration from village to pastures*

^ *Creating the demonstration plots with the local communities an integral part of the process*

7 *Stable method to grow Caucasian Oak (Quercus macranthera) to prevent landslides*

> *Continuation of pasture restoration activities with local restoration and agronomy experts*

## Pasture Inventory

Since 2013, the project worked to monitor inventory of ≈3,000ha of summer pastures. A vegetation map was created using satellite imaging and remote sensing applications. The collection of this data has helped to clarify where and how restoration work needs to happen. With the completed pasture inventory, updated information on soil and vegetation cover is available to environmental authorities and local pastoralists.

## Nursing Pastures back to health

After completing the inventory, restoration activities in the pastures worked to demonstrate best practices for the sustainable use of pasture resources and better erosion control measures.

In the project sites, severely degraded areas were detected in all 16 summer pastures. In response, fencing and reforestation, combined with sowing erosion-controlling plants, has allowed for natural regeneration of vegetation cover. In the gravest cases of soil dislocation, bio-engineering measures using woody materials were applied.

The project demonstrated several experimental restoration treatments to enhance carbon pools, including the sowing of more than 350ha of degraded soil with seeds, completion of 15 demonstration plots with plantings and erosion pre-

*Jonathan Etzold, international ecologist, and local community member checking the survival rate of the young trees*

vention measures, and the establishment of rotational grazing systems for 16 farms of approximately 3,000ha of land.

More than 3,000ha of summer pastures have been restored, allowing the timeless practices of Azerbaijani pastoralism to persist.

In Azerbaijan, the pilot project worked to promote more efficient use of land in the Greater Caucasus, shifting from the current unsustainable practices to sustainable land management practice.



## Sustainable Curricula

Pastureland and meadows are an integral part of Azerbaijan's landscape, culture, and agrarian economy. High summer pastures, and most mid-altitude winter pastures, are owned and managed by the State authority and leased to individuals or companies through grazing permits that usually last 10-15 years. As a result of agrarian reforms, livestock husbandry has been fully privatised. Raising livestock has become very popular in Azerbaijan due to these reforms, but environmental pressures are intensified by the now-declining practice of moving livestock between summer and winter pastures.

One of the most important outputs of the project related to a comprehensive analysis of current practices and potential solutions. As a result, and with support from GEF, the project co-funded a sustainable pasture curriculum. The curriculum analyses of target qualifications showed that subjects related to pastures and their utilisation were taught in only a limited number of specialties at the Azerbaijan State Agrarian University. Therefore, the project co-operated with the Ministry of Education to create 'pasture curricula'. Based on previous research and materials, the training programme covers two full study years, or four semesters. The first year of training mainly covers basic agricultural skills, while the second year covers specialisation in animal husbandry. Within the specialisation modules, the curriculum includes modules such as sheep breeding, grazing, and fodder utilisation, which together focus on the needs of beneficiaries of the project (i.e. pasture

using farmers). Altogether, 13 modules were developed on climate and environment, botany, animal selection and reproduction, plant protection methods, farm economy, sheep farming, animal feed production, grassland (pastures), and others. The curricula are prepared based on a previously developed draft by the EU-funded twinning project. The 'Livestock specialist' training programme was inaugurated in the Gabala Vocational Education and Training School by the Ministry of Education during the 2016/17 academic year. This training program will also be made available to other vocational training institutions in the coming years.

*Tree nursery created with active support from the local community, including indigenous plants and fruit trees*





## Azerbaijan
## Clima East Pilot Project results:
## **Some quick facts**

- **New tools for vulnerability assessment** and **practices for better adaptation planning** were introduced, based on appropriate advice and consultation on locally appropriate systems and options.
- More than **20 local specialists are now trained** and using a variety of new modelling, monitoring and vulnerability assessment techniques to support better policy and planning.
- More than **350ha of degraded soil sowed** with seeds.
- **Completed 15 demonstration plots** with plantings and erosion prevention measures.
- **Established rotational grazing systems for 16 farms** of approximately **3000 hectares** in total.
- **Restored** more than **3000 hectares** of summer pastures.
- **Beekeeping centre** established to serve **10 families** from Burovdal municipality.

# Clima East Pilot Project in Belarus

*Conservation and sustainable management of peatlands in Belarus to minimize carbon emissions and help ecosystems to adapt to climate change*




LOCATION:
Zvaniec and Sporaŭskaje peatlands in Drahičyn and Biaroza districts, Belarus

On a cold winter morning, the Belarus peatlands can seem deserted. White snow covers the logs and piles of reed on both sides of the road carved in a secluded area in the Southwest of Belarus. But, the emptiness is an illusion. We are at the Sporaŭskaje Biological reserve, the home of one of the biggest lowland bogs in Europe, and a site where innovative technologies for the minimisation of carbon emissions is tested for the benefit of Belarus and larger Europe.

Belarus is known as the country of peats, bogs and mires; they cover more than 14% of the country's lands. In the 1950s, 54% of the peat-bogs were drained, and as a result the peatlands were degraded such that they were no longer suitable as either farmland or forest. Groundwater levels dropped 50-70cm and led to changes in the range of flora and, at times, to extinction of botanical communi-

^
*As part of project activities, a managed fire of dry vegetation was successfully tested and carried out for the first time in Belarus*

<
*The reed that is going to be cut in order to preserve the natural habitat*

ties. This exacerbated the loss of organic components in the soil and led to an increasing level of peat mineralisation and $CO_2$ emissions. The rich and biodiverse wetlands – which would otherwise be a source of oxygen production and $CO_2$ sequestration – became an environmental deficit once drained.

Carbon stores have built up in peatlands over millennia; they are currently a reservoir for carbon, but without protection they could create a positive feedback loop contributing to climate change. If bogs are drained, and fires are allowed to burn through them, then it is possible to quickly release huge stores of ancient carbon – orders of magnitude more rapidly than the speed at which it accumulated originally.

## Keeping it in the Ground

With EU funding and UNDP implementation , as part of the larger Clima East programme, the project is working in Zvaniec and Sporaŭskaje peatlands in the Drahičyn and Biaroza districts in Belarus – the two largest lowland bogs in Europe.

## Using Peat to Capture Carbon

Peat soils are the world's richest carbon soils", but they are simultaneously the most prone to releasing carbon when degraded. The harvesting and processing of excessive reeds – along with shrubby and woody biomass - for subsequent production of heating briquettes and pellets is one of the best ecosystem-based climate mitigation approaches that can be implemented in peatlands.

Indeed, both Zvaniec and Sporaŭskaje fens altogether absorb and accumulate 4,100 tonnes of $CO_2$ on a yearly basis. Efforts to keep carbon from escaping the peat are an important step towards achieving Belarus's commitments to reducing GHG emissions by 28% below 1990 levels.


*Coordinating traditional haymaking festivals is a good way of reaching out to local communities*

*"The festival addresses the importance of going back to your roots in order to preserve your home place for the future."*

## Cleaning, harvesting, cutting

Through the project's duration, 2,814 hectares of land have been cleaned. 3,240 tonnes of dry wood, 74 tonnes of grass and 364 tonnes of reed have been harvested. 3,678 tonnes of dry biomass were produced , pelleted and used as fuel, which will result in avoided emissions of 4.7t $CO_2$– eq/ha/year and will promote a favourable environment for the preservation of endangered wildlife and long-term sustainable development.

The machines acquired for the project purposes include a special light-weight tractor, two chain saws, a mulcher for chopping bushes, a flaker for chipping the wood, a Softrak, and a conveying/loading trailer for wood transportation. Additional equipment includes a biobaler (brush cutter and presser) and a forestry harvester.

Additionally, an elaborate monitoring system which evaluates the efficiency of biomass harvesting and identifies reductions in carbon emissions has been installed.

## For Peat's Sake

One positive indicator of bog health is a small sparrow-like bird called an Aquatic warbler, 40% of whom breed in these peatlands. *"If there would be just a slight increase of the male population of this vulnerable species within our fens, or even if it would stay at the same level, that already might be considered a victory,"* continues the head of the National reserve Vadim Protasevich. *"Other immediate positive side effects include bigger spawning grounds for fish and clearer views of the horizon for the local isolated farmsteads that were not seen through the sick bushes and reeds for such a long time that one could actually question their existence".*

For Belarus, the Clima-East pilot project worked to promote both the economic and environmental viability of harvesting biomass from peatland areas, reduces carbon emissions, and introduces innovative technologies for sustainable management of natural areas of international importance.

*An increased number of birds can be found in the restored peatlands*





## Belarus
## Clima East Pilot Project results:
## **Some quick facts**

- **Cleaned 2814 hectares** of land of all fen vegetation.
- **3,240 tonnes of dry wood, 74 tonnes of grass** and **364 tonnes of reed** have been harvested.
- **Data-loggers of surface water levels** were installed; collection and analyses of data regarding surface water levels were conducted.
- **Construction** and **maintenance of water-regulating facilities** and **construction of access points** are completed. These facilities provide active regulation of water levels and access for machinery at Zvaniec Reserve that, in return, will help to sustain the natural condition of the peatland and conserve endangered species of plants and animals.
- **Technological maps were developed** for implementation of measures aimed at peatlands' sustainable management.
- **Procurement** and **transfer of technical equipment** necessary for biomass harvesting, transportation, and finished product output manufacturing.
- **Clearing of key areas** of meadows and back bogs from reeds and tree-shrub vegetation.
- **Controlled fires of dry vegetation** were conducted in order to prevent uncontrolled fires, shrubs invasion and support back bogs' ecosystem efficiency.



# Clima East Pilot Project in Georgia

*Sustainable management of pastures in Georgia to demonstrate climate change mitigation and adaptation benefits and dividends for local communities*


LOCATION:
Vashlovani Protected Areas, Georgia

## Georgia's Badlands

Advertised as a 'World of Wonders', the Vashlovani Protected Areas are a collection of nature reserves, a national park, and natural monuments located in the eastern part of Georgia. Akin to other rugged badlands terrain in the world, portions of Vashlovani have been specially designated since 1935 in an effort to preserve the unique semi-desert steppes and 'shallow' forests, dispersed among sharp walled cliffs and canyons. In 2003, the Protected Areas were expanded, to include a Strict Nature Reserve, three Natural Monuments, and a National Park.

^
*Pondering life is common during shepherding, Vashlovani National Park, 2014*

<
*Part of the Vashlovani Protected Area with the Greater Caucasus Mountains looming on the horizon*



## The Transhumant Tusheti

Although there is no population permanently residing in the Vashlovani protected areas, transhumant shepherds and sheep breeders from Tusheti use the territories for winter pastures. Not to be confused with nomads who generally follow an irregular pattern of movement, transhumance is the seasonal movement of people with their livestock between fixed summer and winter pastures.

> ***"Seasonal livestock grazing plays a big role in shaping the ecological mosaic of the park. Sheep are very important for this balance. This is one ecosystem, the coexistence of wild nature and men."***
>
> — Vazha Cherkezishvilli, Vashlovani Protected Areas Administration

For the Tushetians, sheep breeding is their traditional occupation, and is widely considered to be the most profitable activity in the region.

The Tush shepherds have a very close relationship with their environment. However, previous unsustainable uses of pastures, coupled with the negative effects of climate change, has led to a loss of vegetation and diversity, increased land erosion, and hastened desertification processes. The cutting of trees for wood,

and the setting of intentional fires on the park's periphery – previously thought to improve pasture productivity – has compounded the erosion of soil surfaces and the degraded ecological condition of the pastures.

In the eastern part of Georgia, the negative effects of climate change include increases in the frequency and duration of extreme weather events such as drought and high winds, increases in the mean annual temperature, and decreased precipitation – all conspiring to increase the aridity of local climate, potentially transforming local semi-arid landscapes into arid semi-desert and desert landscapes.

Recognising these pressures, pasture use must be gradually restructured to minimise current burdens and allow for sustainable utilisation in future.

***"I can definitely say that the climate is changing. Some of the vegetation does not exist here anymore." -***

— Vazha Cherkezishvilli, Vashlovani Protected Areas Administration

*After the migration from summer pastures, the shepherds are getting ready for the winter season*

*"Every morning we wake up at 5 or 6 o'clock. We have breakfast, wash up and head to the pastures. That's the life of a shepherd."*

*Flock on migratory route on the way to watering source*

## The environment knows no boundaries

With EU funding and UNDP support, the Clima East Pilot Project in Georgia worked to rehabilitate pastures and migratory routes within the Vashlovani National Park, to introduce and promote sustainable land and pasture management practices, and to secure climate-resilient livelihoods for the local population.

*A flock of approximately 1,500 sheep grazing in the pasture*

The project targeted the pastures located in the Vashlovani Protected Areas and their vicinity with an ecosystems-based approach to climate change. Noting that the majority of the pastures are located near main roads and residential areas – and are therefore prone to overuse – the project worked to highlight that these areas can be productively and sustainably used, provided they are carefully managed.



## Interdependent Realities

The project rehabilitated 4,064ha of degraded pastures, including 300ha of migratory routes. These rehabilitation efforts included the creation of sustainable pasture management plans for 16,000ha of pastures within the park, and trainings for the farmers and sheep-breeders in implementing these plans.

The project supported the establishment of a productive co-operation with the local NGO NACRES, which has significant experience working in Vashlovani Pro-

*The pilot farm before and after the rehabilitatio*

*Garsevan Garsevanidze, Shepherd since 1963 – "The upgraded house is much better. You can't compare how much better."*

tected Areas and was actively involved in the preparation of pasture management plan as well as other project activities. As part of these efforts, two pilot farms were established to demonstrate sustainable practices and showcase benefits.

## Saving nature, energy, and time

To lower pressure from migratory routes, and to decrease the distance the shepherds need to take their sheep to find water, the project installed two water supply systems within the park, as well as watering points for the farms adjacent to the park, for a total of five new watering points supporting 15 farms.

With an understanding of how critical the collection of current climate data is, the project also supported the installation of two automatic meteorological stations and their connection to the national meteorology system.

Additionally, the project supported efforts to establish a unified veterinary system for Tush shepherds, to meet the needs of approximately 30,000 sheep in the region.

*When water is scarce, shepherds and their flocks will often walk 8+km; moving hundreds of sheep back & forth exacerbates erosion problems*



## Securing sustainability

Partnership arrangements and stakeholders' participation are among the project's strong assets. The project established multi-level stakeholder engagement in developing strong policies to improve pasture management. The project established regular meetings between the Project Executive Board (PEB) and the Pasture Management Stakeholders. The Pasture Management Stakeholders' Coordination meetings were held on a regular basis (twice a year) and included a larger group of around 30 participants to discuss pasture policy-related issues and share experience, which allowed continuous ownership of the key project partners in the decision making process. This has allowed the project to ensure a transparent dialogue with all concerned stakeholders in Georgia and allowed a productive communication to support project's implementation.

For Georgia, building on the co-ordination at the national level, co-ordination within the broader Clima East programme included collaborating on practical and policy issues with additional countries in the Caucasus and the Eastern Partnership (Armenia, Moldova, and Azerbaijan) that were also working specifically on protecting and rehabilitating pasture ecosystems.

*Vashlovani Badlands, Georgia*





# Georgia
# Clima East Pilot Project results:
# **Some quick facts**

- Sustainable pasture management plans for **16,000 hectares of pastures** within Vashlovani National Park have been prepared.
- Installed 2 water supply systems (with a **total length of ≈30 km**) with 5 watering points in total, which will have a direct impact for 15 farms constructed to reduce pressures on Vashlovani Protected Areas from sheep movement.
- Organised **2 pilot farms** in Vashlovani National Park.
- Installed **2 automatic meteorological stations** and connected them to the national meteorology system.
- Established a unified veterinary system for Tush shepherds, designed to meet the needs of **≈30,000 sheep in the region.**
- Prepared **pasture policy brief** identifying main gaps in the sector and way-forward.
- Purchased **agricultural machinery** (Tractor, shredder, sprayer) for implementation of pasture management activities (e.g. fertilization).

# Clima East Pilot Project in Moldova

*Sustainable management of pastures and community forests in Moldova's first National Park (Orhei) to demonstrate climate change mitigation and adaptation benefits and dividends for local communities*



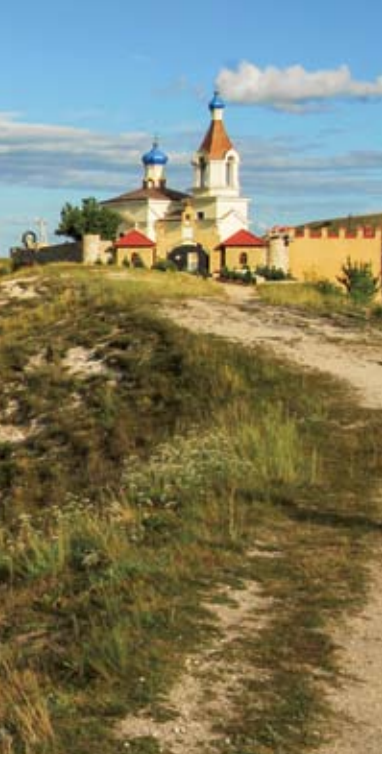

LOCATION:
Orhei National Park, Moldova

Orhei National Park is Moldova's first national park. Created in 2013, the park consists of large expanses of forested plateaus in central Moldova, populated with rare and endemic relict species which are of particular scientific interest.

## Balancing the Needs of People and Nature

The special protections for the park were carefully calibrated to preserve local livelihoods at the same time that they preserve biodiversity and ecosystem services. Notably, the 33,792ha of the park traverses four districts of Moldova and includes 18 communities.

Balancing the dual challenges of sustainable development and environmental protection, Orhei is protecting critically important habitats, transforming how Mol-



^
*Farmer in Ghetlova, one of the sites that has been part of the project's carbon stock inventory of 4285.52ha of pasture lands*

<
*Orhei National Park, Moldova*

dovan farmers are managing their working lands, and inspiring better land-use practices. Orhei is an innovative pilot project which shows that climate change mitigation and adaptation can produce benefits and dividends for local communities.



## Fertile Soil

Moldova's agrarian economy relies heavily on its rich, fertile 'chernozem' soil, but areas which had previously been covered with forests and pasture vegetation are under pressure from grazing throughout the country. The total grazing capacity of pastures in Moldova is much lower than the number of head of livestock. As a result, land becomes deforested and denuded, leading to severe soil erosion. Moldova currently loses 2,000ha of its soil annually.

Degraded lands cease to support the vegetation which can capture greenhouse gasses like $CO_2$. The release of these gasses contributes to climate change, which has resulted in droughts and extreme weather events in Moldova, leading to further losses of vegetation and soil. Rehabilitating soils is therefore the linchpin for economic success and environmental sustainability.

With EU funding and UNDP support, the Clima East Pilot Project in Moldova is implementing management plans which are rehabilitating forests and pastures. Restored areas will improve forage yields and livestock production, reduce pressure on degraded areas, and improve wildlife habitat.

Reafforested lands are of central importance if Moldova is to achieve its economy-wide unconditional target of reducing greenhouse gas emissions by 64-67 per

^
*Afforestation efforts included planting of native species such as oak, ash, maple*

<
*Creating the baseline of soil and biomass carbon in pastures was carried out for the first time in Moldova*



cent below its 1990 level in 2030. Orhei National Park is an important pilot project, and shows a meaningful path forward for countries to sustainably develop, protect the environment, and mitigate climate change.

## Long-term Sustainability through community-centred enterprises

In an effort to enhance environmental sustainability, the Clima East project in Moldova supported the establishment of a multi-village commercial enterprise for management of community pastures and forests in Orhei National Park, which offers various infrastructure services (water supply, sewerage, street cleaning, pasture management and restoration, etc.) to six villages in the Orhei National Park region, covering 5196 households and 839ha of pasturelands. The resulting long-term sustainable pasture management cumulated in environmental protection, job creation, and profit generation. Profits realised from fodder sales are invested back into pasturelands through re-seeding and fertilising of degraded pasture plots.

## Incentivizing sustainable land management

The project also commissioned economic projections to assess the socio-economic sustainability of Clima East Moldova interventions, including the use of innovative incentive mechanisms to support sustainable approaches for land management, and to further integrate this approach into the existing policy and regulatory frameworks in the Orhei National Park area. The technical assessment estimated economic benefits of over EUR 25,000,000 in the first 15 years, provided that implementation is completed and maintained.

The study also projected significant benefits in several related domains, including increasing local public budgetary resources and financial predictability; increasing employment for the local work force; increasing demographic stabilisation; improved infrastructure for transportation, sanitation and water systems and services; and a more enabling business environment, especially in the areas of animal breeding and animal products processing. Cultural benefits include preserving local traditions relating to agricultural and forest-specific activities, and education.

## Moldova
## Clima East Pilot Project results:
## **Some quick facts**



- Developed **pasture and forest management plans** for **18 communities** from Orhei National Park region, totalling **1305.8 hectares of community forests** and **4285.52 hectares of community pasturelands.**
- **Project activities are backstopped** with amendments to the Land Code of Moldova, which make pasture management plans a compulsory tool for land use.
- The project also supported **afforestation of 150 hectares of degraded lands** using native climate resilient species and **restored 472 hectares of pasturelands.**
- Our work in Moldova impacted more than **20,800 people:** improving livelihoods and reducing their vulnerability to climate change impact.
- It is estimated that within a 20-year period, over **900 kilotonnes of carbon dioxide** will have been either **sequestered or avoided.**
- **Carbon sequestration** from afforestation activities was estimated to be **7,346.7t $CO_2$.**
- **Carbon sequestration** from restored pasturelands increased by **239%** up to **17,300t $CO_2$.**
- The **productivity of pastures** due to restoration activities increased by **2.43 times,** from **2.04t/hay/ha** in 2014 to **4.59t/hay/ha** in 2016.
- The overall **survival rate of afforestation activities** was estimated at **≈90%** in 2014, and remained at **78%** - in line with national standards - through the end of the project.



# Clima East Pilot Project in Northern Russia

*Protection and restoration of forest and peatland permafrost carbon pools in Komi Republic and Nenetsky Autonomous Okrug*


LOCATION:
Komi Republic and Nenetsky Autonomous Okrug, Russia

The ecosystems of the Komi Republic and Nenetsky Autonomous Okrug (NAO) are rich carbon pools of forest and peatland permafrost, and are a valuable source of global biodiversity with high economic significance. The 29.2 million hectares of pristine boreal ecosystems in the Komi Republic represent almost 35% of the total pristine forest carbon pools remaining in Russia.

NAO is known as a jumping off point for the Euro-African and Eurasian migratory bird routes, and it hosts the main portion of frozen or permafrost peatlands in the Russian North-East. According to expert assessments from the Komi Institute of Biology, the 1.63 million hectares of forests in the Komi Republic contain around 100 million tonnes of carbon. In an undisturbed state, these forests annually sequester over 3 million tonnes of carbon.

^
*Drilling the hole for monitoring*

<
*New protected areas on the Western slopes of the Polar Urals*



## Climate change mitigation & adaptation in Northern Russia

To preserve these ecosystems and their valuable role in mitigating climate change, the EU-funded, UNDP-supported project, *Protection and restoration of forest and peatland permafrost carbon pools in Komi Republic and Nenetsky Autonomous Okrug*, is working to demonstrate effective approaches to conserving, restoring and managing these carbon-rich forests and permafrost areas of the Russian North.

> ***"The Arctic nature and, in particular, the permafrost soils saturated with carbon are highly vulnerable. It is easy to damage this thin, tender layer, and it is a big problem to restore it. We have seen only too often in the past that man uses natural resources heedlessly without thinking about rehabilitation or environment conservation. These works, carried out by a group of researchers, may hopefully change the state of affairs, and we will be able to save our marvellous land."***
>
> — Stanislav Zolotoy, Director, Nenets State Nature Reserve, Narian-Mar

As part of the Clima East programme, the project is working to reduce greenhouse gas emissions and improve climate change mitigation measures. In Northern Russia, the project has enhanced the protected area system, and has supported the future establishment of a new regional protected area (more than 20,000ha

^
*Ruslan Bolshakov and Maxim Vergeichik are taking data from hole loggers*

<
*Northern Russia Nenets*

in the Inta Region). It also strengthened Komi's largest National Park — the Yugyd Va — with its extensive permafrost forests.

The project has also equipped staff of the Yugyd Va National Park and the regional protected area management authority with the tools and training to implement conservation and patrol activities in the PAs, including prevention of fires and illegal logging. Local and indigenous communities have been involved in these efforts – including forest fire-fighting, nature protection, and adaptation measures.



## Restoration of peatland permafrost ecosystems

Ecosystem restoration measures are being implemented in a number of pilot sites which harbour oil- and gas-related infrastructure in the NAO – drilling pads, winter roads, ground extraction pits, and pipelines. The objective is to develop green engineering techniques to prevent losses of valuable ecosystem services and decrease carbon emissions from permafrost thaw.

Mitigating the decline of this fragile habitat is based on techniques developed with extensive knowledge and understanding of the functioning of permafrost related ecosystems. The structures and features developed are expected to enhance – rather than degrade – natural processes like water and carbon accumulation, and vegetation self-regeneration. The target ecosystems will be rendered sustainable enough to not require future maintenance other than simple monitoring – another instance of the cost effectiveness of long-term sustainability.

Working with local communities, the project team has also developed plans for the sustainable use of rehabilitated land to avoid future degradation of these restored ecosystems.

## Conserving virgin forest & tundra ecosystems

The Yugyd Va National Park is the largest national park in Russia and one of the largest national parks in the world. Unique primary forests occupy 56% of its area. The northern part of the park, occupying almost 600,000ha on the western slopes of the Pre-Polar Urals, are home to the highest peaks of the Ural Mountain Range.

Through the project, equipment was purchased to improve the ability to safeguard virgin forests and mountain tundra areas when roads are impassable. Forest guards were provided with an all-terrain vehicle and a fireproof forest tractor for the National Park to improve park protection.

> ***"Implementing this project helps us to highlight the vulnerability of the Arctic facing industrial development before it starts, focus on the need to apply an ecosystems approach in developing new areas and restoring damaged sites, and apply functional scientific and legal solutions for restoration."***
>
> — Oleg Belak, Deputy Governor, NAO, Head of the Department of Natural Resources

For Northern Russia, this co-ordination within the Clima East programme includes collaborating on practical and policy issues with additional countries in the Caucasus and the Eastern Partnership (i.e. Ukraine and Belarus) that are also working specifically on peatland restoration, as well as quantitative assessment of carbon storage and flows in the permafrost forest and peatland ecosystems.



## Northern Russia Clima East Pilot Project results: **Some quick facts**

- **20 workshops** were held in the area, involving the district's population in **forest fire prevention, nature protection, and climate change adaptation activities.**
- The environmental education project ***The Tundra in its True Colours*** was carried out jointly with the Komi-based company PrognozKomi.
- As a result of our work, over a 20-year period:
  - About **96 t/ha $CO_2$** - equivalent will be sequestered or avoided in permafrost peatlands;
  - **Carbon cycle** estimation will be developed for **420,563 hectares** of permafrost peatland ecosystems;
  - Approximately **21,000 hectares of vulnerable permafrost ecosystems** will be protected, improving resilience of communities in Northern Russia.
- **35,000 inhabitants** will have **improved livelihoods** through direct economic benefits resulting from our activities.



# Clima East Pilot Project in Southern Russia

**UNDP/EC project "Supporting Climate Change Mitigation and Adaptation in Russian and the Eastern Neighbourhood"**

*Conservation and sustainable management of peatlands in Russia to minimise carbon emissions and help ecosystems to adapt to climate change*


LOCATION:
Republic of Bashkortostan, Southern Russia

Russian peatlands comprise the largest national store of peatland carbon globally, but peatlands are not a muddy monolith. A wide variety of peatland types, with diverse ecosystems, are found across Russia. In the European part of Russia, broadleaf forest, forest-steppe and steppe zone peatlands are located close to the southern limit of survivability for peatlands, and are thus especially vulnerable to anthropogenic climate change. Despite their relatively small size, steppe peatlands are home to a number of important ecosystem services, but are insufficiently recognised by nature conservation and scientific studies. They are listed among the most vulnerable wetland types at the global and national level under

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*The project has mapped over 5,000 peatlands in the forest-steppe zone of European Russia with a total area of over 350,000 hectares*

<
*Unique flora and fauna found in the Republic of Bashkortostan*

current climate change projections. The area, number and diversity of peatlands in the forest-steppe and steppe zone of European Russia significantly decreased during the second half of the 20th century because of drainage for agriculture purposes, peat extraction, flooding by dam construction, and other human activities.

Many of the peatlands that were previously drained have been practically abandoned, and are now frequently ravaged by fire. Climate change exacerbates the issue by increasing the probability of droughts and fires. Peatland fires are known for their particularly high carbon losses and, therefore, greater emissions of GHG. Peatland fires are a major source of so-called "black carbon", or soot, which damages the environment and human health. The draining of the Berkazan-Kamysh peatland in the Republic of Bashkortostan led to degradation of adjacent grazing lands (owing to a sinking groundwater table) and the disappearance of water in wells in surrounding villages.

## Lost in the Mire

The loss of mires also entails the loss of their crucial natural functions and ecosystem services: water cycle regulation, flood control, carbon accumulation, biodiversity, and more.

Under prolonged high summer temperatures, peat begins to desiccate and decompose, and is subsequently susceptible to wind and soil erosion. This leads directly to $CO_2$ emissions. These last remaining patches of wilderness, dispersed

*Peatlands or mire ecosystems appear wherever a surplus of water is found. Mires are home to migrating birds and are a biodiversity hotspot*

among arable lands and settlements, play a significant role in the wider ecosystem as habitats, shelters, sources of water and food, and sanctuaries for rare and endangered species. As the climatic conditions and adjoining ecosystems change, these vital ecosystems are threatened.. Traditionally, peatlands in Russia, and these regions in particular, belong to different land categories. At present, there is no integrated inventory of peatlands showing their original composition, modern status, land use, ecological functions and ecosystem services, which could be used for sustainable management, territorial planning, protection and restoration.

Previously, administrative regions had not integrated modern peatland protection and management into territorial plans. Trade-offs between ecological values and traditional consumptive use of peatlands had not previously been evaluated. This presented a continued risk to southern region peatlands.



At the beginning of the project, only a few thousand hectares of peatlands in Southern Russia were protected. Numerous unique spring fens, karst mires, lacustrine floating mires and other peatlands were at risk, and many disturbed peatlands in southern Russia required restoration. A number of peatland restoration projects have been undertaken in Russia, with regional, national and international support. But these activities are focussed primarily on restoring those boreal peatlands with a significant moisture surplus.

Restoration of degrading broadleaved, forest-steppe and steppe zones peatlands, which have deficient moisture and specific soil conditions, is an important addition to the project. This led to the development of methods, recommendations, norms and safeguards for restoration, and the implementation of pilot restoration projects in abandoned drained peatlands in forest-steppe and steppe regions.

Even before the Project was launched, local communities drafted a project for peatland rewetting with an aim to improve the agriculture and environment in the region, but the project was not implemented due to the lack of money. As a result of the pre-existing community buy-in, the rewetting of the Berkazan-Kamysh peatland carried out by the Project was enthusiastically supported by neighbouring villages, local self- governance bodies, and the management of the Asly-Kul Nature Park. The resulting restored peatlands reduce fire hazards, improve the environment, lower risks to agriculture and recreation in the Asly-Kul Nature Park, and improve human health.

## Peatlands at the Edge

With EU funding and UNDP support, the Clima East Pilot Project in Southern Russia has worked to demonstrate a model for adaptation to climate change and mitigating emissions of GHG emissions from degrading peatlands in the southern part of Russia by incorporation of peatland issues into territorial planning, and implementing peatland restoration and protection in pilot regions. The project strives to protect the dwindling legacy of wet ecosystems left within arable lands in steppe and forest steppe regions.

The project mapped over 5000 peatlands in the forest-steppe zone of European Russia with a total area of over 350 thousand hectares. In addition, peatlands and mires were selected for establishment of protected areas and restoration in the Republic of Bashkortostan.

The project has developed a database module for the steppe and forest-steppe peatland belt in European part of Russia, which has been integrated into the existing database of the Institute of Forest Science, which provides planning information for decision makers at all levels.

For Southern Russia, co-ordination within the Clima East programme entails collaborating on practical and policy issues with additional countries in the Caucasus and the Eastern Partnership – Northern Russia, Ukraine and Belarus – that are also working specifically on monitoring and preserving peatlands. These pilot projects show that intact ecosystems such as peatlands, permafrost landscapes, boreal forests and pasture land can have strong and cost-effective positive consequences both on climate change mitigation and adaptation.



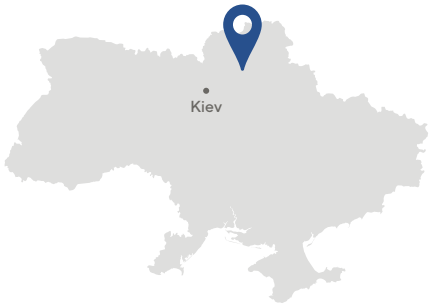
### Southern Russia
### Clima East Pilot Project results:
### Some quick facts

- **Mapped over 5000 peatlands** in the forest-steppe zone of European Russia with a total area of **over 350,000ha**.
- **Peatland firefighting capacity enhanced** by training **25 PA rangers,** and the provision of additional equipment (e.g. backpack fire extinguishers).
- Documents for the establishment of **15 new PAs** have been drafted.
- Documents for the nomination of **Asly-kul lake and Berkazan-Kamysh peatland as wetland of international importance** have been drafted.
- The **dam reconstruction** in Berkazan-Kamysh peatland has been finished and process of rewetting started.



# Clima East Pilot Project in Ukraine

*Conservation and sustainable use of peatlands*




LOCATION:
Nizhyn district in Chernihiv region, Ukraine

There was a time when the Smolyanka mire flourished with wildlife. For Ukraine, peat was a relatively cheap and readily available source of fuel and energy. By the mid-1970s, Ukraine was extracting nearly 7 million tonnes, in the process draining more than one million hectares overall.

Large-scale drainage projects transformed the swampy, boggy land into temporarily viable agriculture or forestry areas, but the economic value of drained peatlands dropped soon after. The land's unique biodiversity suffered as many plants and animals, including some globally endangered species, started to disappear.



^ *Overview of the Desna river. Smolyanka is part of the Desna's River basin and site of Ukraine project's peatlands territory*

7 *Construction of the Smolyanka hydro drainage system*

> *Improved Smolyanka hydro drainage system, Nizhyn rayon Chernihiv region*

Local economies were hurt as hunting and fishing dwindled, and communities could no longer rely on mires as a source of berries and income.

Instead of absorbing carbon dioxide, the mires began emitting it as fires raged over dried-up land. Aerosols and toxic gasses spewed into the air from the conflagrations, making people from local communities sick. Communities were on the hook for expensive, dangerous firefighting efforts.

## Preserve and protect

With EU funding and UNDP support, the Clima East Pilot Project in Ukraine is working to restore and promote the sustainable use of peatlands through building

*The briquettes are made from compressing wood and wood chips*

*Milk delivery is organized by the citizens of Kukshin village*

the capacity of the national greenhouse gas (GHG) inventory system as well as developing and piloting an ecosystem-based approach for converting degraded private arable peatlands to semi-natural conditions with high value for local people and biodiversity conservation. The project targets Nizhyn district in Chernihiv region, which is one of the ten regions in Ukraine where 95% of drained peatlands are located.



The objective of the pilot project in Ukraine has been to demonstrate how, within one landscape, certain areas of abandoned degraded agricultural peatlands that emit carbon can be restored, while adjacent areas can be protected at the same time to increase carbon sequestration.

Specifically, the project worked to support the restoration of approximately 3,000ha of degraded agricultural peatlands to prevent emissions of carbon and rehabilitate habitats with high biodiversity values. The project is also working to strengthen the protection of existing peatlands areas in the Chernihiv region, and increase the protected area coverage by 6,100ha.

## Keeping it in the ground

Together with local communities and the private sector, the project cleaned 12km of the master channel, repairing 4 sluices and 12 tube crossings in the Smolyanka irrigation system. To make the shift sustainable, the project team worked to register 6,100 hectares of Smolyanka as the Nizhynskiy Regional Landscape Park, protecting over 40 endangered species.

As a result, the risk of devastating fires decreased and plants and animals have returned to the area. It is expected that over the 20-year period, 224,000 tonnes of $CO_2$-equivalent emissions will be prevented.

## Milk & Butter

Positive outcomes will not be felt solely by nature; local communities will enjoy near-term benefits. The air has become cleaner, and rehabilitated pastures are providing forage for local cows. This has spurred commercial activity; local residents, with project support, have begun farming cooperatives to save on equipment and processing. Overall, more than 4,500 people will benefit from the initiative.

***"Now, I understand what a sustainable solution truly means. This is a winwin for the nature, the people, and the economy."***

– Oleksandr Pyvovar, Head of Kukshyn village council

## Warmth and Fuel

A Briquette Co-operative was established by the project in Vertiyvka village. Benefiting 2,000 people in the local communities, the briquettes, a compressed block of wood and woodchips, are used for fuel and heating. Local authorities are working with the cooperative to supply briquettes for schools, kindergartens and other social infrastructure buildings in the community.

For Ukraine, this co-ordination within the Clima East programme includes collaborating on practical and policy issues with additional countries in the Caucasus and the Eastern Partnership (i.e. Belarus and Russia) that are also working specifically on peatlands conservation and restoration.

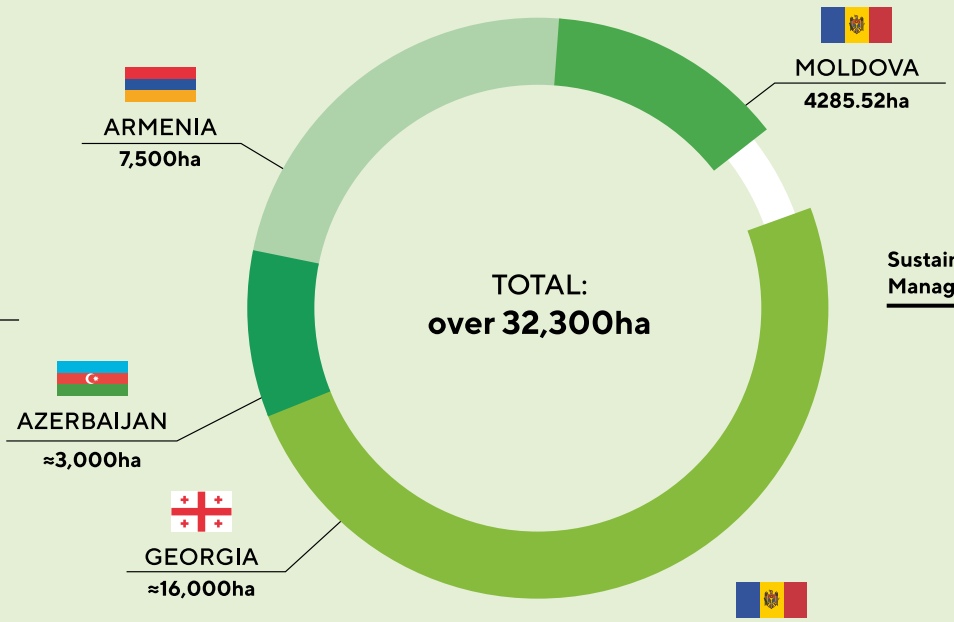


## Ukraine
## Clima East Pilot Project results:
## Some quick facts

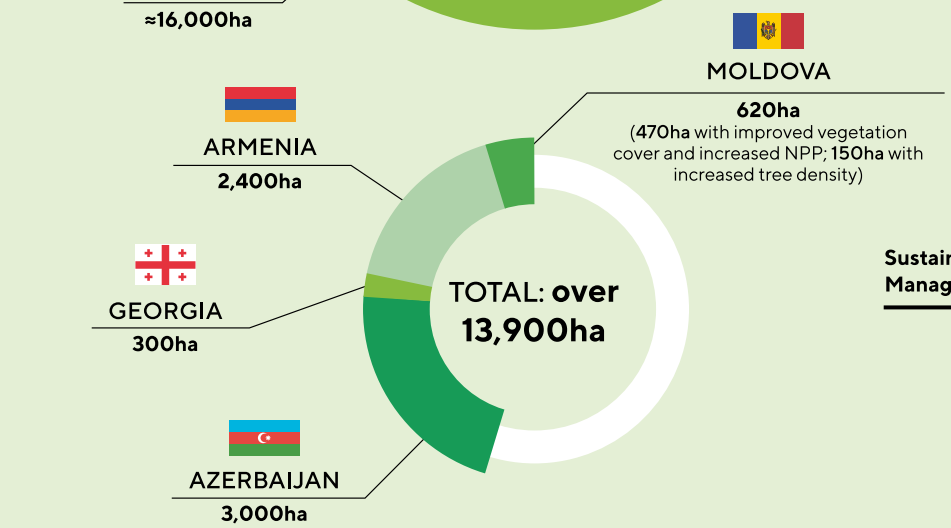
- **Cleaned 12km of the main irrigation canal,** repairing 4 sluices and 12 tube crossings at irrigation system Smolyanka.
- Registered **6,100 hectares of Smolyanka** as Nizynskiy Regional Landscape Park, which will help protect over **40 endangered species.**
- Benefiting **2,000 people** in the local communities, the briquettes, a compressed block of wood and woodchips, are used for fuel and heating.
- Over the 20-year period we expect to prevent **224,000 tonnes of $CO_2$** equivalent emissions from releasing into the air.

# Pasture management plans

Armenia, Azerbaijan, Georgia, Moldova




**Sustainable Land Management 1:**



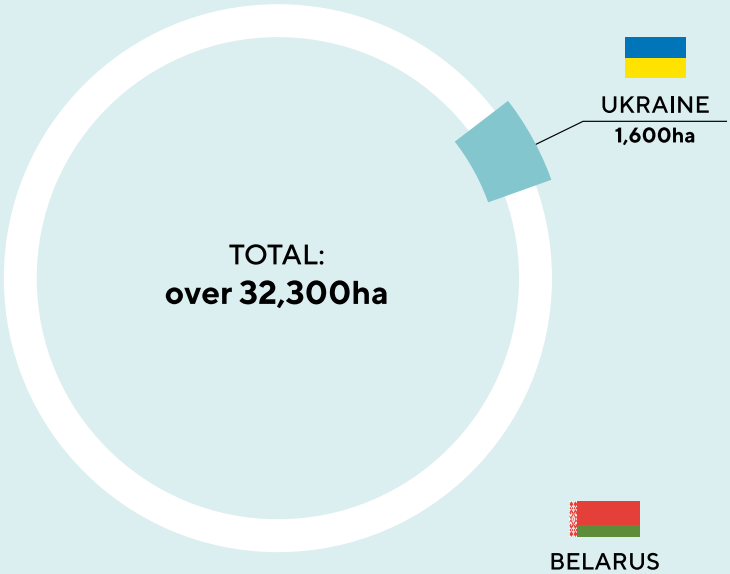

**Sustainable Land Management 2:**

# Peatlands management plans

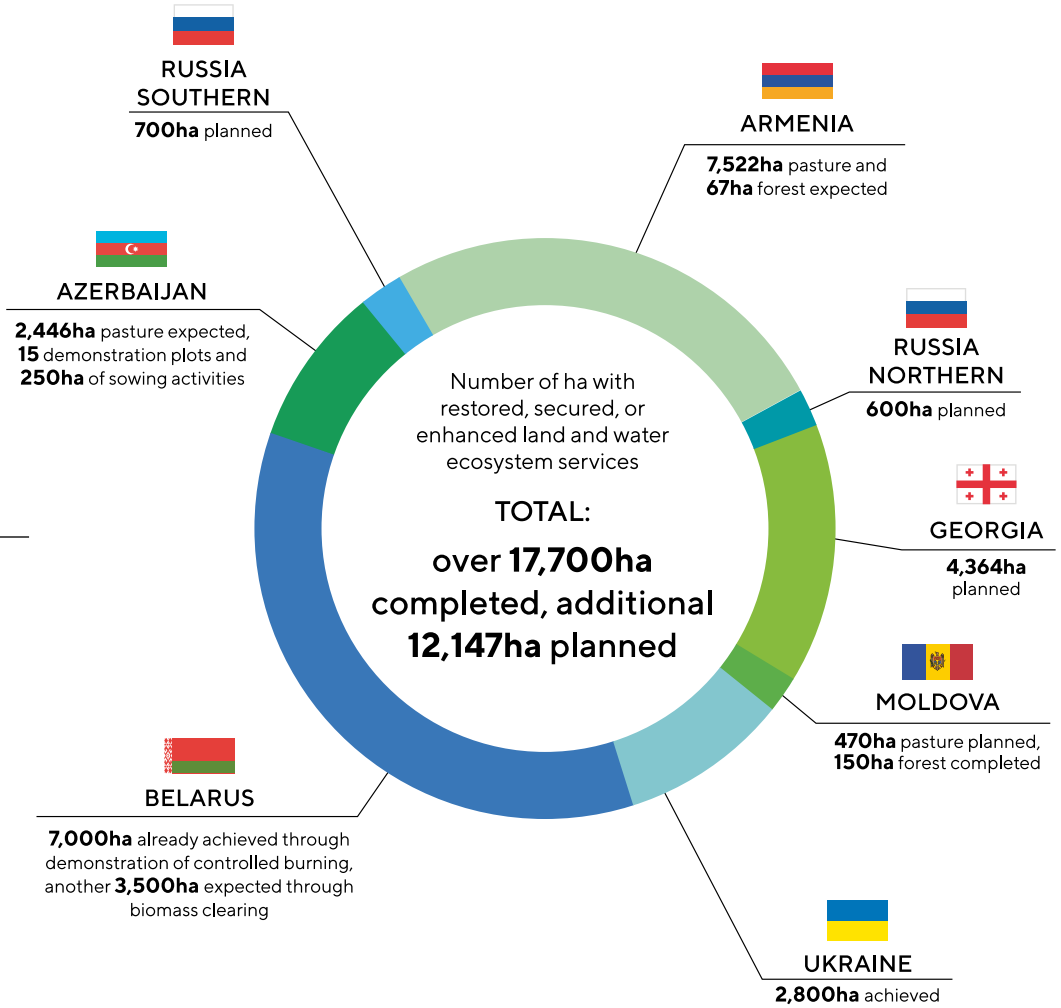
Belarus, Russia, Ukraine



Number of ha of **rangeland/ pasture with improved management**




Number of ha of land with **sustained or enhanced land** and **water ecosystem services**


RUSSIA SOUTHERN
700ha planned
ARMENIA
7,522ha pasture and
67ha forest expected
AZERBAIJAN
2,446ha pasture expected,
15 demonstration plots and
250ha of sowing activities
RUSSIA NORTHERN
600ha planned
Number of ha with restored, secured, or enhanced land and water ecosystem services
TOTAL:
over 17,700ha completed, additional 12,147ha planned
GEORGIA
4,364ha planned
MOLDOVA
470ha pasture planned,
150ha forest completed
BELARUS
7,000ha already achieved through demonstration of controlled burning, another 3,500ha expected through biomass clearing
UKRAINE
2,800ha achieved

# Conclusion

Overall, a total of 17,700 hectares of lands have restored, secured, and/or enhanced land and water ecosystem services over the seven countries, and an additional 12,000+ hectares are scheduled for planned restoration and/or enhancement activities.

As a European Union-funded project package assisting the Eastern Partnership countries and Russia in approaches to climate change mitigation and adaptation, the Clima East Pilot Project has demonstrated the power and utility in ecosystem-based climate change mitigation and adaptation efforts.

Within the region, co-ordination within the Clima East programme has included collaborating on practical and policy issues with the seven participating countries in the Caucasus and the Eastern Partnership.

Knowledge generated by the Clima East programme has contributed to a sound base for future climate change adaptation in each of the respective countries and in the region. Tools, technical guidelines, experiences, and lessons learned have been shared regionally and globally, to enhance the capacity to plan for and respond to climate risks.

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*Resilient nations.*