EU4Environment in Eastern Partner Countries:
Water Resources and Environmental Data (ENI/2021/425-550)

PILOTE REFORESTATION OF THE RIPARIAN FOREST FOR PRESERVING WATER RESOURCES IN MOLDOVA

Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

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ABOUT THIS REPORT

PROJECT SHORT TITLE

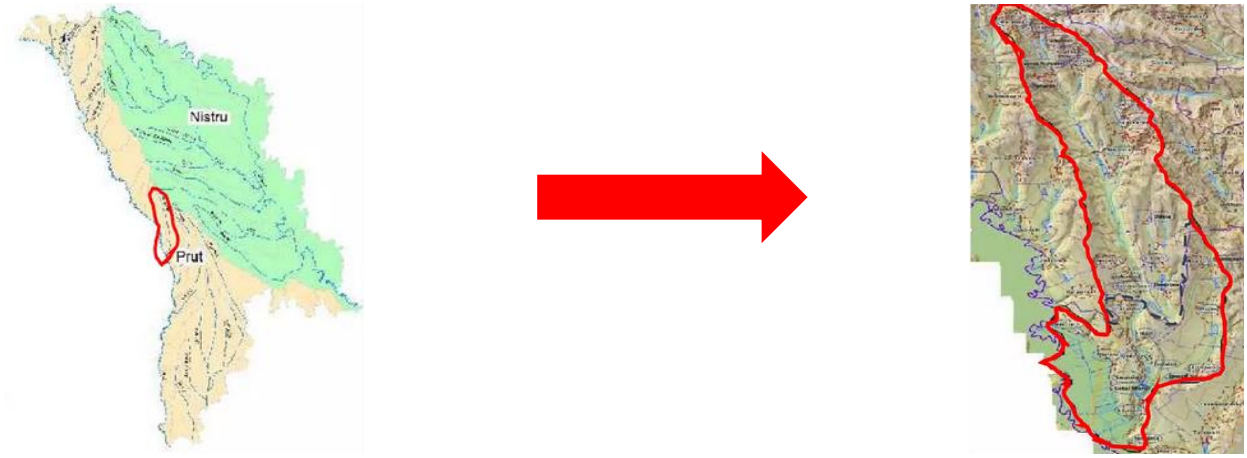
Pilot reforestation of the Riparian forest in Moldova

COUNTRY

Republic of Moldova

LOCATION AND SCALE OF WORK

Moldova's two river basin districts: Danube Prut and Black Sea (yellow) and Nistru (green) and the Nirnova pilot sub-basin (circled in red), with experimental inter-municipal contracting authority at sub-basin level (ADI) in particular



Nirova sub-basin

COUNTRY INCUBATION SUPPORTED BY

Funded by the European Union, the Austrian Development Agency and the Water Agency Artois Picardie as part of the Nature-based Solutions activity of the Eu4Env Water Resources and Environmental Data program.

financed by AFD in conjunction with the European Investment Bank Synergistic operation developed according to the Team Europe Initiative concept.

REGIONAL CONTEXT AND CHALLENGES

THE WATER BENEFITS OF THE FOREST

Forests play a vital role in the water cycle, preserving water quality, retaining water and regulating runoff. They also limit soil erosion and protect us from natural hazards.

- Forests enhance the soil's capacity to store water: Water retention corresponds to the water absorbed or used by forests. The volume retained depends on forest characteristics such as canopy area, average leaf area, length of active vegetation period, tree composition and density. But it also depends on other factors such as the age and number of strata of forest vegetation. This retention of water influences the quantity and timing of its return to rivers and groundwater, by increasing or maintaining infiltration and the soil's storage capacity.
- Forests help limit flooding and soil erosion and protect against natural hazards: Forests can soak up excess rainwater, preventing runoff and flood damage. By releasing water during dry periods, forests help produce purified water and mitigate the effects of drought.
- Forest evapotranspiration regulates the water cycle: trees and plants transpire 95% of the water absorbed in forest soils, retaining only 5% for their own growth. Soils in forest ecosystems also transpire water, which evaporates into the atmosphere. Soil evaporation and plant transpiration combine to create the phenomenon of evapotranspiration. Air masses circulating over forested areas are thus recharged with water vapour, which can then condense further along its path. In this way, forests draw water evaporated from the oceans into the interior of continents. Generally speaking, it is estimated that an average of 40% of precipitation on the continents comes from the evapotranspiration effects of vegetation.
- The forest has a positive impact on water quality: water absorption in forests is 6 times greater than in a simple plot of grass of the same surface area, and filters and purifies the water. In fact, concentrations of nitrates and phytosanitary products in forest water are considerably reduced (less than 5 mg/l for nitrates).

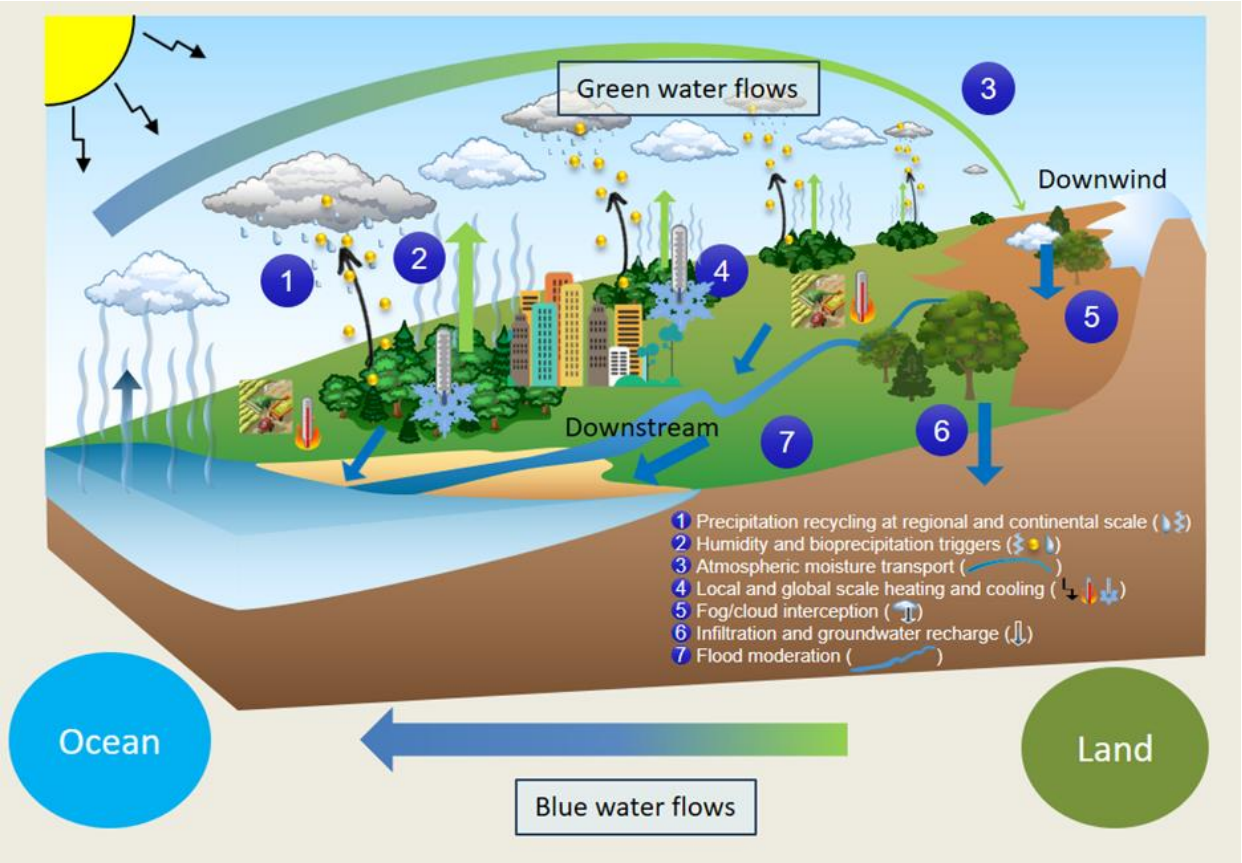


Figure 1 Forests balance the flow of blue and green water in the landscape. Green water: water that is intercepted or absorbed by plants and returned to the atmosphere through evapotranspiration. Blue water: water that runs off or percolates into aquifers, rivers and lakes. Numbers 1 to 7 show water cycle processes that are enhanced by trees and forests. (modified from Ellison et al. 2019 and Falkenmark & Rockström 2005).

- Forestry can also be a way of ensuring that land is more easily occupied without the use of inputs such as fertilizers or pesticides. It can therefore be a nature-based solution for protecting the most sensitive areas, such as riparian zones or drinking water catchment protection zones.

NB: The 8 action cards on nature based solution linked to forest could be attached as guidance in future terms of reference

THE CHALLENGES FACED BY MOLDOVA'S FORESTRY SECTOR

Moldova's forestry sector faces major challenges in terms of governance and sustainability. With insufficient forest cover (13.7% of the country compared with over 40% in the European Union), this has a significant impact on the environment and overall economic growth. Forests provide essential habitats for biodiversity and offer numerous ecosystem services, such as carbon sequestration and erosion regulation. However, Moldova's forests are threatened by the short-term effects of climate change. Illegal logging and pressure from the local population on forest resources are exacerbating the situation. The level of timber harvesting, which is not clearly defined, is currently insufficiently regulated and unsustainable. Its direct economic contribution is low (less than 1% of GDP). The majority of forests (87%) belong to the State, while 12% are owned by local authorities, thus requiring an appropriate regulatory and institutional framework to distinguish forest strategy, planning and management.

THE NATIONAL STRATEGY FOR FOREST MANAGEMENT REFORM

Aware of the crucial importance of forests in combating climate change and mitigating its effects, the Moldavian government has focused on reforestation efforts. The aim is to plant an additional 145,000 hectares over the next ten years. The 2023-2032 reforestation program, led by the Ministry of the Environment and the National Forestry Agency (Moldsilva), aims to modernize Moldavian forest management in line with EU standards. Key objectives include the adoption of a new forestry code, the reorganization of public institutions and the promotion of climate-friendly practices to encourage a sustainable forestry economy. The Moldavian government is committed to a comprehensive reform of its forestry policy, notably through a reforestation program eligible for financial support from AFD and benefiting from technical assistance from the Société forestière de la Caisse des dépôts et consignations.

PROJECT OBJECTIVE(S)

Develop an approach combining the knowledge of European and Moldavian water and forestry specialists to identify ways of maximizing the benefits of the reforestation effort for the preservation of water resources in Moldava in order to lead the major reforestation program that could be eligible for funding by international donors, including AFD and EIB.

The restoration of riparian zones has a triple objective: preserving biodiversity and natural habitats, protecting water resources (both quality and quantity), and promoting sustainable forestry. Flood risk mitigation will also be considered. Potential reforestation areas along waterways have been pre-identified by the Moldovan Ministry of Environment. These lands are most often under the regulatory land management of the Moldovan Water Agency* (Apele Moldovei).

Sub-objective: Carrying out a pilot study to reforest the riparian zone, in close collaboration with the Moldovan Water Agency (Apele Moldovei) and in consultation with stakeholders in the timber industry.

*Apele Moldovei's responsibility for river riparian zones includes the following areas:

1. For big rivers (Dniester, Prut, Cogâlnic and Răut): land 100m from the banks.
2. For medium-sized rivers: land 50m from the banks
3. For rivers less than 120 km long: land 20 m from the banks.
4. For smaller rivers: plots of land 5 m from the banks.

SUSTAINABLE DEVELOPEMENT OBJECTIVES TARGETED BY THE PROJECT

SECTOR CONCERNED

Forestry - Water security - Protection and management of water and land ecosystems

EXPECTED RESULTS AND MILESTONES

1. Development of a methodological approach for the reforestation and renaturation of land bordering watercourses in the Moldovan context, maximising the objectives of protecting water resources (quantity and quality), preserving biodiversity and natural habitats and sustainable forestry production (riparian zones, catchment protection areas, erosion slopes, etc.) and reducing the risk of flooding. The pilot areas for riparian development and reforestation will be selected from the areas bordering watercourses already pre-identified by the Moldovan water agency. Most of these areas are under the responsibility of the Moldovan Water Agency (Apele Moldovei).

   This work will take advantage of relevant work already carried out with the support of European cooperation, such as the use of the 2 RBMP MD and their cartographic atlas, the use of the Catalogue on Nature-based Solutions and in particular the 8 sheets at the crossroads of water and forestry, the links forged between European specialists and Moldavian institutions at both national and local level, notably with the creation of the first Intercommunal Development Association (ADI) in the Nirnova basin, providing an example of decentralized project management at sub-basin level, etc.

   This stage will be formalised by the development of Terms of Reference by the International Office for Water, in partnership with the Société Forestière, in collaboration with the concerned Moldovan authorities and intended for a team of local consultants. This stage will be completed by a search for possible sources of funding for the study and its follow-up by the end of 2024.

2. Support for the consultation for the selection of the consultant team and monitoring of the riparian reforestation pilot study. Note that this work on riparian management and reforestation proposals could eventually enrich future versions of the RBMPs or be added to them in the form of an addendum to the 2 RBMPs.

Content of the pilot study :

- Legislative and regulatory review
- Selection and description of the pilot sites under the responsibility of the Moldovan Water Agency
- Presentation of the main issues and objectives
- Field visit
- Assessment of the impact of reforestation on the surrounding environment
- Summary of reforestation and renaturation recommendations according to the types of land identified
- Costing of the reforestation project

This stage will be formalised by a study report produced by the consultant team under the supervision of the International Office for Water, in partnership with the Société Forestière. This study report will be submitted to the Moldovan authorities concerned. A national or regional workshop will be organised to share the results of the pilot study.

3. Organization of work and contract for the effective reforestation of areas maximizing the preservation of water resources by the end of the European RBMP planning cycle, i.e. by the end of 2027, including pilot operations and amplification for the following planning cycle 2028-2033.

PROJECT STAKEHOLDERS

Players involved:

Moldavian institutional partners:

- The Ministry of Environment, its Water Department and the Moldavian Water Agency (Apele Moldovei)
- The Ministry of Environment, its Department in charge of the Forest and the Institutul de Cercetări și Amenajări Silvice (ICAS) of the Moldsilva Agency
- The Basin and sub-basin committees
- The ADI Nirnova and local authorities

European backers:

- The Moldavian State,
- The European Union and European Investment Bank
- The French Development Agency (AFD) and the Austrian Development Agency

Specialized operators:

- International Office for Water
- Société Financière

PROJECT COST ESTIMATE

Action sheet deveoped in the framework of the EU4Environment Water and Data project.

International expertise for stage 1 (see above) potentially covered by EU4Green Recovery and AFD SF projects (subject to prior approval).

Budget for the pilot operation estimlated to 50 k€ including the identifying of suitable land for the actual reforestation operations.

Cost of pilot reforestation works and possible funding to be determined by the study.

SHORT TERM ACTIONS (2/3 YEARS)

- Reforestation of riparian forests in pilot areas with the aim of maximising the protection of water resources, preserving biodiversity and natural habitats, sustainable forestry production and reducing the risk of flooding.
- Management and exploitation plan for reforested areas to ensure sustainable silvicultural exploitation and management.

LONG TERM ACTIONS (10 YEARS)

- Expansion of reforestation actions in the next planning cycle 2028-2033.

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