MERLIN



"The Lower Danube Floodplain – an area of welfare" – Roadmap to 2050

Regional Scalability Plan – Case Study 8

Danube Floodplain RO

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Imprint

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1 For the reader

The Danube, its tributaries and floodplains are among the most valuable freshwater habitats in Europe. The connectivity between the river and the floodplains as well as the habitats' status degraded in the last 100-150 years due to river regulations, which affected both biodiversity and the ecosystem services that the freshwater habitats provide. Despite the past deterioration, the restoration potential in the Danube catchment is high, especially in its middle and lower parts.

"Lower Danube Floodplain - an area of welfare" in Lower Danube is a vision of wise land use management of 390,000 ha of floodplain, taking into account the needs of local communities. This plan aims to identify common actions to create a resilient Danube floodplain to climate change, translated here by reducing the risk of floods and drought, increasing biodiversity, and the socio-economic development of local communities. Thus, new, strategic activities are added to the activities already implemented, which makes the Danube floodplain be restored on a large scale. This goal is made possible by inter-institutional cooperation to implement large-scale restoration.

The document summarizes the activity of WWF Romania and the stakeholders involved in the last 20 years and establishes a way forward for the next 25 years. It is expected that this document will contribute to the need to understand the urgency of the large-scale implementation of nature-based solutions along the Danube as adaptation measures to the effects of climate change.

The content of the document was developed as part of the MERLIN project, funded under the H2020 program of the European Commission.

2 Focus of the RSP

The current document represents an up-scaling of the restoring Danube floodplains to serve multiple goals. Geographically, The Regional Scalability Plan (RSP) is focused on the Danube stretch from Iron Gates II to Hârșova. The scaling process is proposed to be implemented by 2050 and beyond. The Iron Gates II - Hârșova stretch starts at Danube's km 853 until Danube's km 253 (600 km along the Danube River) and it covers an area of 386,900 ha of land. To effectively manage the scale of the project, the area has been divided into nine sectors. Within each sector, potential restoration sites have been identified based on specific criteria, as illustrated in the accompanying maps (see annex):

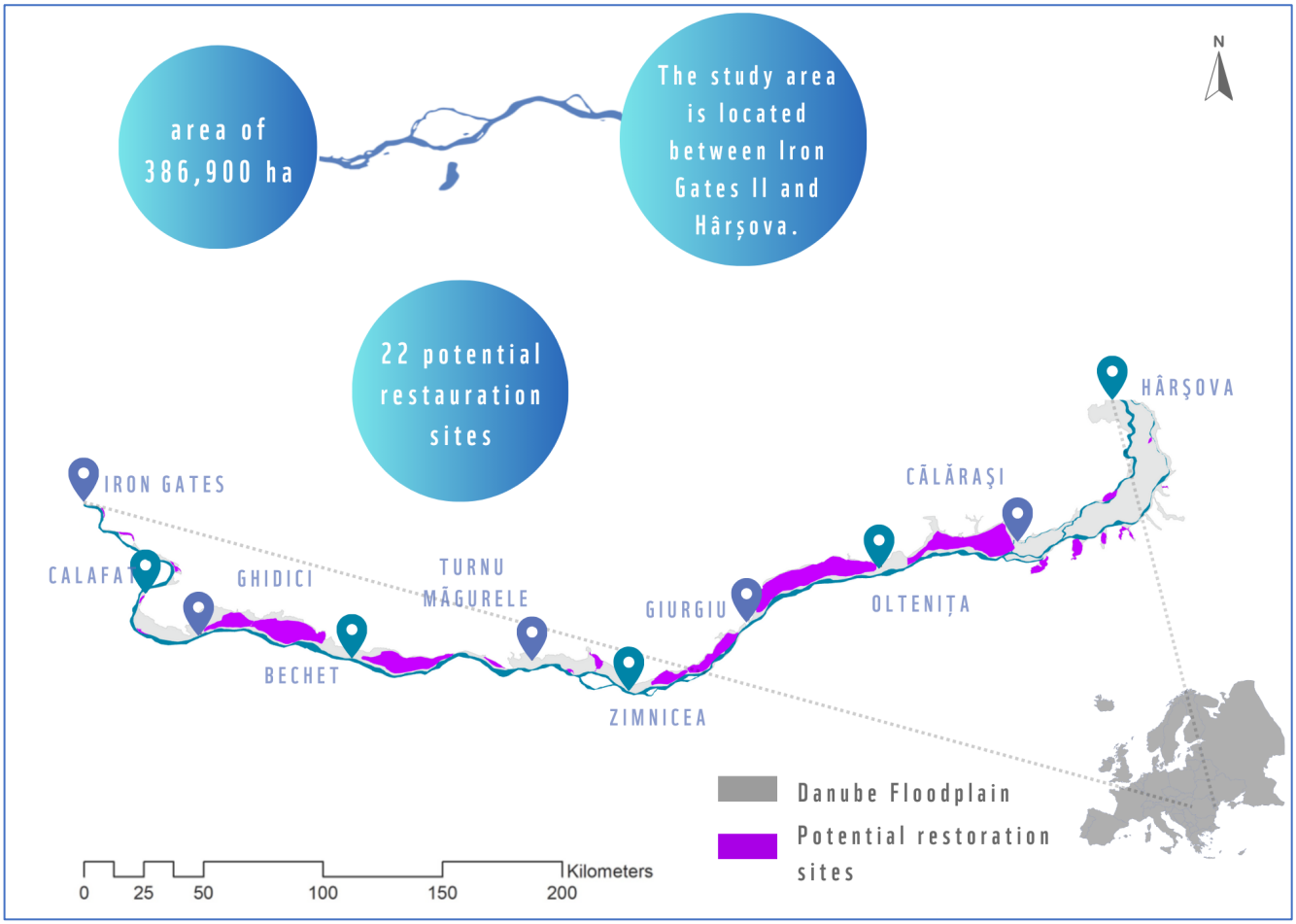


Figure 1 Map of Potential Restoration Site Locations

2.1 Regional characteristics

During the second half of the 20th century, agricultural expansion led to the neglect of wetlands' ecological importance. Wetlands were viewed as unproductive and were drained to make way for agricultural land, while natural riverbanks were embanked for flood defence. These interventions, widespread across the Danube River Basin, resulted in the conversion of large natural areas into intensive agricultural land, at the expense of numerous plant and animal species and local communities. The Danube floodplain was embanked (flood protection dykes) almost its entire Romanian length, alternating with a reduced area with a free-flowing regime. Almost 80% of the original Danube floodplain has been lost and disconnected from the main river. The dykes are located at a distance of 200-300 m from the Danube River and they have flood protection use, being considered as a significant pressure according to the Water Framework Directive requirements.

Land cover in most of the floodplain is rural residential and agricultural, with extensive areas drained, cleared and irrigated since the 1960s. There is a population of 208,000 inhabitants along the Iron Gates II-Hârșova stretch, distributed in 7 cities and 66 villages. The younger inhabitants of rural areas migrate towards urban areas or move

abroad to western European countries. The land in the floodplain is owned by the Romanian state (large surfaces) and by the private owners (small surfaces, many private owners). In many situations, private owners concede their land to agricultural companies in exchange for money or products. Much of the lower Danube floodplain area is designated as Natura 2000 sites for their importance to assure a favourable conservation status of species and habitats of community importance.

2.2 Justification for the region

Starting in the 2000s, growing scientific understanding and periodic floods, such as those in 2006 in Romania, highlighted the urgent need for sustainable floodplain management. Awareness of the ecological and societal challenges prompted a shift towards nature-based solutions. Efforts to convert agricultural areas back into wetlands, known as **"room for the river and nature,"** inspired by the Dutch model "Making space for rivers," gained momentum. Despite agriculture still dominating land use, progress is being made in transitioning towards wetland restoration. This ongoing transformation involves collaboration among decision-makers, landowners, and NGOs, guided by principles of sustainable development aimed at conserving biodiversity, enhancing flood protection, and supporting economic activities.

In the context of climate change, impacting nature and humans, and taking into account the Lower Danube's importance for biodiversity, projects have been implemented, together with relevant stakeholders, to contribute to climate change adaptation. Some projects implemented NBS to gain evidence of their effectiveness in the face of climate change, others aimed to identify new potential restoration sites for large-scale restoration, and others, the present ones, aimed to identify the actions needed to move forward large-scale NBS implementation.

The combination of geographical conditions (former Danube floodplain) with climate trends, socio-economic status, the ecological value connected to the Danube and Danube floodplain and already implemented restoration as demonstration projects led to the choice of The Lower Danube Floodplain for Regional Scalability Plan to continue the process of maximizing the ecosystem services provided by the Danube floodplain also in the context of climate change conditions.

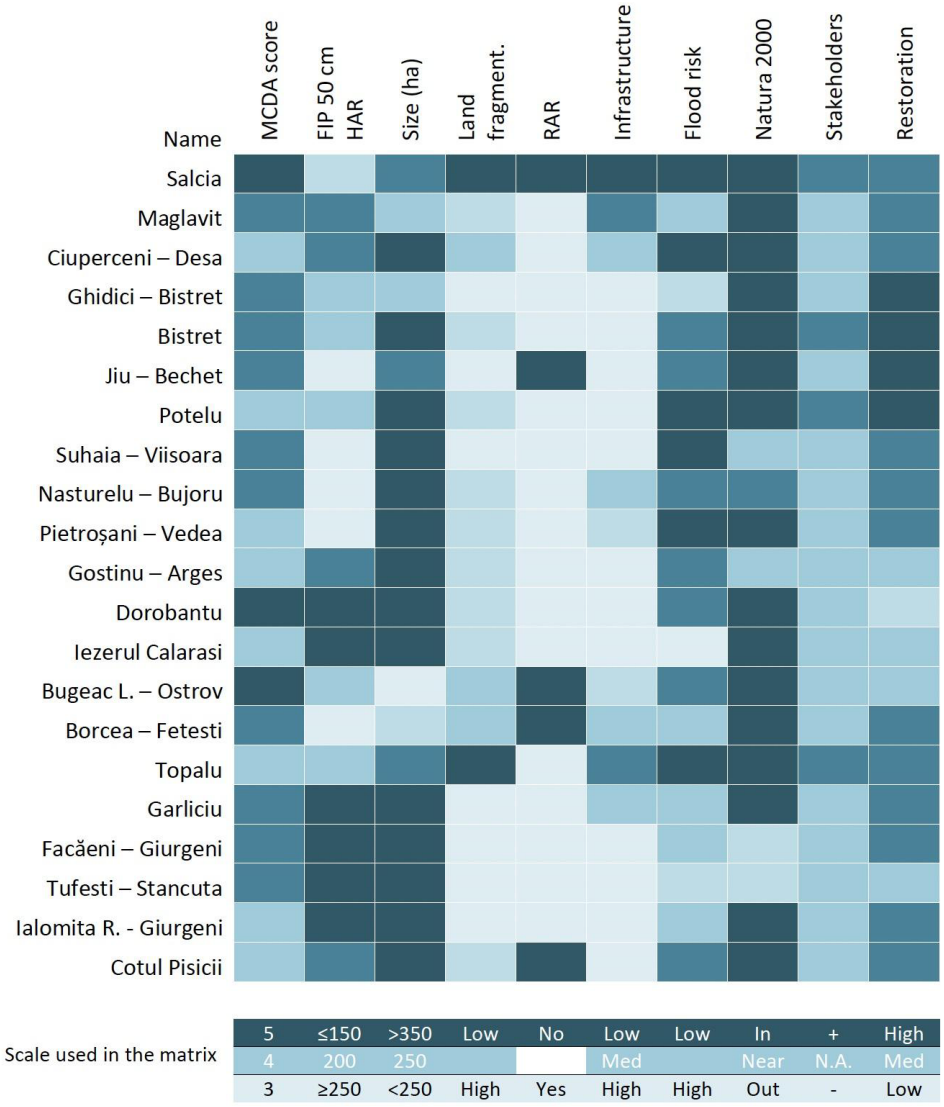


Figure 2 Decision matrix used for candidate restoration sites selection. Darker the colour on a rows better suits as final candidate site for restoration (see scale used at the bottom of the table) (FROA study, WWF, 2017)

2.3 Linkages and synergies with other initiatives

The Lower Danube Floodplain, situated in the south of Romania facing effects from climate change, floods and droughts. Moreover, the climate scenarios are predicting worsening effects, especially decrease in water availability and temperature rise. In recent years, the droughts in the area have accentuated, negatively impacting economic activities, especially agriculture and navigation, but also natural ecosystems, for example, during the summer, some lakes dried. At the same time, fluvial floods are also considered a phenomenon accentuated due to climate change, especially after historical floods events occurred in 2006 and 2010 causing considerable damages.

The effects of the climate change (droughts and floods) are considered in the policy documents like Climate Change Adaptation Strategy and Action Plan (2022-2030), Flood Risk Mitigation Strategies (together with Flood Risks Management Plans and River Basin Management Plans the last cycle until 2027), Management Plans for Natura 2000 sites (still, more than 200 Natura 2000 sites in Romania doesn't have management plans). All of existing one along the Danube are mentioning the restoration of the aquatic ecosystems, rivers ecosystems solutions that provide multiple benefits. However, the investment plans of some key economic sectors are promoting grey infrastructure (e.g. in the agriculture sector are promoting rehabilitation of the former irrigation infrastructure not considering alternatives and the impacts of water availability on other sectors).

Due to its ecological value and economic potential depicted during the project "The Economic and Ecological resizing of the Danube Floodplain (REELD)", the Lower Danube Floodplain has been in the interest of different authorities and NGOs. In 2000, the initiatives around the Danube were related to designate the Natura 2000 sites as part of the accession process to the European Union. In this context, the Declaration Lower Danube Green Corridor was signed by the Danube neighbouring countries: Romania, Bulgaria, Moldova and Ukraine aiming to protect and restore the most valuable natural ecosystems along the Danube. Based on the follow-up designation process after the Declaration, 386,721 ha from the Danube floodplain was designated as Natura 2000 site.

Moreover, the historical fluvial flood events from 2006 and 2010 brought the idea of using floodplain restoration as a flood risk mitigation measure to the attention of the government. Thus, "The Economic and Ecological resizing of the Danube Floodplain" study was commissioned by the National Research and Development Institute Danube Delta aiming to analyse the solutions on the entire floodplain to mitigate the flood risks. As a result of the study, 15% of the floodplain was identified as an area with the potential to be used for restoration with multiple benefits for nature conservation and also for flood risk mitigation. Additionally, the use of restoration as a solution to mitigate the flood risks (nature-based solution) has been considered in two strategic projects: Danube Floodplain and RoFloods. From both of them, the potential of restoration sites has resulted based on the criteria related to ecology, hydrology and socio-economic. As a result, some sites with high potential for restoration have been included into the Flood Risk Management Plan and River Basin Management Plans and also proposed to be implemented through European Financing Programmes.

Until now, the initiatives related to the restoration mainly identified the potential restoration sites and the implementation have been done on limited number of the sites. For example, based on local initiatives and with support from WWF and different donors two projects have been finalised: Gârla Mare with financial support from The Coca Cola Foundation and EU programmes (Horizon, MERLIN project) and Balta Geraiului with financial support from EU Life programme. However, for the other identified potential sites, the projects preparation is ongoing, presented in the following, categorised based on the land-use as main criteria:

- ***Restoration of the dried fish ponds and semi-functional fish ponds.*** Around 1,167 ha of dried fish ponds (Gruia, Cetate, Salcia, Ciuperceni) situated in Natura 2000 sites in the Lower Danube Floodplain and around 3,920 ha of fish ponds (Bistreț and Suhaia) functioning as semi-natural lakes have been identified as potential area for restoration aiming at improving hydrological conditions for sustainable/extensive aquaculture, nature conservation, flood risk mitigation and diversify the economic activities. Moreover, preliminary studies have been performed engaging key stakeholders.
- ***Restorations on large agriculture enclosures.*** On the transformed areas from wetlands into mainly agricultural land (around 51,000 in Potelu and Greaca enclosures) some initiatives from the local communities raised asking for restoring partially the wetlands and former forests. These types of measures are considered by the locals to mitigate the effects of severe droughts and stop the expansion of the aridization phenomena.
- ***Restoration of former river stretches.*** The human-made transformation of the Danube Floodplain modified also the flow regime of small Danube tributaries. It is the case of former Gârla Pasărea and Jieț at Bechet where, on more than 50km the water regime was altered, negatively impacting the local communities' activities. Here, the water flow on the former tributaries was discussed with the stakeholders to be restored.

Not only on the Danube Floodplain are initiatives in planning for using nature-based solutions, but also, on the Danube River to improve the navigation conditions. Thus, Romanian authorities responsible for navigation on the Danube commissioned projects (FAST Danube I and FAST Danube II) to identify, plan and implement necessary interventions on the Danube. In this context, the package of measures is designed to include grey but also green, following the "build with nature" principles.

Although the number of initiatives supporting nature-based solutions along the Lower Danube is consistent, some governmental investment plans could limit the potential of implementing nature-based solutions or stop the plans. One case is regarding the investment on irrigation systems where the plans for investments don't consider the plans for other sectors, risking to be labeled as maladaptation solutions although the restoration and agriculture could jointly plan the implementation in the Danube floodplain. The second case is the idea to build a new hydropower plan on the Danube, which will have an enormous negative impact on the ecosystems and economic activities along the Danube Floodplain.

In parallel with more governmental initiatives, different projects focused on research have been implemented or are under implementation. A relevant project is the REXUS, focused on the nexus concept (water-food-energy-ecosystems) through developing and validating knowledge and tools to facilitate the transition from nexus theory

to practice, taking into account climate impacts. Under this project, the engagement of local stakeholders along the Danube was intensive leading to defining and agreeing a vision of the Lower Danube, helping also the activities of the MERLIN project.

Having all the past and ongoing initiatives mentioned above, the MERLIN project brings a coherent approach by structuring the scientific and interdisciplinary approach, based on the defined indicators relevant to the nature-based solutions concept, contributing to the societal challenges.

3 Stakeholders of the RSP

3.1 Main stakeholders

During the implementation of the MERLIN project, but also other initiatives presented above, a large group of stakeholders have been consulted in identifying the potential areas for restoration aiming nature conservation, helping in mitigating the floods and droughts risks and providing conditions for blue-green businesses like sustainable/extensive aquaculture on fish ponds and ecotourism. Thus, the **main stakeholders involved** are from the water sector (National Romanian Water Administration, Regional and Local Water Administration), agriculture (Ministry of Agriculture, National and Local Agency for Land Reclamation, National and Local Agency for Payments and Intervention in Agriculture, farmers, Farmers Associations), fishery and aquaculture (National and Local Agency for Fishery and Aquaculture), environment (National Agency for Protected Areas, Environmental Protection Agency), local administration (County Councils, Local Council, Mayors), navigation (River Administration of the Lower Danube), National Meteorological Agency, academia (University of Bucharest, University of Craiova), NGOs.

The entire process of the engagement of the stakeholders has been done extensively lately under the REXUS project. In the future stages, their involvement will continue with the focus on implementation stages, monitoring and maintenance.

3.2 Stakeholder map

ID#	Name of stakeholder	Acronym	Sector	Involvement status	Scale	Ownership	Description: Expectations, interests, responsibilities	WebLink
1	Ministry of Environment, Water and Forestry	MoE	Environment, climate and disaster	Already involved	National	Public	develop the strategy and legal framework on environment (water and protected areas)	www.mmediu.ro
2	National Agency for Protected Areas - national level	NAPA - nat	Environment, climate and disaster	Already involved	National	Public	coordinate the implementation of protected areas strategy	ananp.gov.ro
3	National Agency for Protected Areas - local level	NAPA - loc	Environment, climate and disaster	Already involved	Local	Public	coordinate at local level the actions related to protected areas	ananp.gov.ro
4	National Administration "Romanian Water" - National Level	NARW - nat	Environment, climate and disaster	Already involved	National	Public	coordinate the implementation of the strategies related to water management (WFD, FD)	https://rowater.ro/
5	National Administration "Romanian Water" - Jiu sub-catchment level	NARW - catch	Environment, climate and disaster	Already involved	Sub-national	Public	implement the water management strategies at sub-catchment level; control the implementation of measures; released the water permits	https://jiu.rowater.ro/
6	National Administration "Romanian Water" - local level	NARW - local	Environment, climate and disaster	Already involved	Local	Public	control the implementation of measures; support the releasement the water permits	https://jiu.rowater.ro/
7	Environmental Protection Agency - national level	EPA	Environment, climate and disaster	Already involved	Local	Public	improve the environmental conditions / limit the negative impact of the polluters; realease the environmental permit	https://www.anpm.ro/
8	Environmental Protection Agency - local level	EPA	Environment, climate and disaster	Already involved	Local	Public	improve the environmental conditions / limit the negative impact of the	https://www.anpm.ro/

ID#	Name of stakeholder	Acronym	Sector	Involvement status	Scale	Ownership	Description: Expectations, interests, responsibilities	WebLink
							polluters; realease the environmental permit	
9	Ministry of Agriculture and Rural Development	MoA	Agriculture	Already involved	National	Public	develop the strategy and legal framework on agriculture (the fishery and aquaculture is included)	https://www.madr.ro/
10	National Agency for Land Reclamation - national level		Agriculture	Already involved	National	Public		https://www.anif.ro/
11	National Agency for Land Reclamation - local level		Agriculture	Already involved	Local	Public		https://www.anif.ro/
12	National Agency for Payments and Intervention in Agriculture - national level		Agriculture	Already involved	National	Public		https://apia.org.ro/
13	National Agency for Payments and Intervention in Agriculture - local level		Agriculture	Already involved	Local	Public		https://apia.org.ro/
14	Farmers Association		Agriculture	Already involved	National	NGO		
15	local farmers from Potelu , Greaca, Gârla Mare, Balta Geraiului		Agriculture	Already involved	Local	Community group		
16	National Agency for Fishery and Aquaculture - national level	NAFA - Nat	Fishery	Already involved	National	Public	coordinate the implementation of the fishery and aquaculture strategy	www.anpa.ro
17	National Agency for Fishery and Aquaculture - local level	NAFA - loc	Fishery	Already involved	Local	Public	support and control the fishery and aquaculture activities at local level	www.anpa.ro

ID#	Name of stakeholder	Acronym	Sector	Involvement status	Scale	Ownership	Description: Expectations, interests, responsibilities	WebLink
18	Company managing the Gârla Mare fish farm (Caviar SA)	Caviar	Fishery	Already involved	Local	Private (Commercial, investor, etc)	manage the fish farm	
19	Company own the Vrata marsh		Other	Already involved	Local	Private (Commercial, investor, etc)		
20	County Council Dolj		Cross Sector (governance, regulation, etc.)	Already involved	Local			https://beta.cjdolj.ro/dm_dolj/site.nsf/pagini/prima+pagina-000011D2
21	County Council Mehedinți		Cross Sector (governance, regulation, etc.)	Already involved				https://www.cjmehedinti.ro/
22	Mayoralty of Gârla Mare, Vrata, Bechet	MGM	Cross Sector (governance, regulation, etc.)	Already involved	Local	Public	manage the local community	http://www.girlamare.ro/
23	Mayoralty of Vrata	MV	Cross Sector (governance, regulation, etc.)	Already involved	Local	Public	manage the local community	https://primariavrata.ro/
24	Local Forestry District	LFD	Forestry	Already involved	Local	Public	manage the forest in Gârla Mare - Vrata	https://drobeta.rosilva.ro/
25	State Inspectorate of Construction	SIC	Cross Sector (governance, regulation, etc.)	Already involved	Local	Public	ensure a proper implementation of the construction projects through permits release and control;	https://www.isc.gov.ro/IC_B.html
26	Coca Cola HBC Romania	CC HBC	Other	Already involved	National	Private (Commercial, investor, etc)		https://ro.coca-colahellenic.com/
27	University of Bucharest	UB	Other	Already involved	National	Other		https://unibuc.ro/?lang=en

ID#	Name of stakeholder	Acronym	Sector	Involvement status	Scale	Ownership	Description: Expectations, interests, responsibilities	WebLink
28	University of Craiova	UCV	Other	Already involved	Regional	Other		https://www.ucv.ro/
29	Lower Danube Administration	AFDJ	Other	Already involved	Sub-national	Public	ensure proper navigation conditions on Danube	https://www.afdj.ro/en
30	WWF Romania	WWF	Environment, climate and disaster	Already involved	National	NGO		www.wwf.ro

4 Green deal goals

4.1 SMART Green Deals relevant for the region: primary goals

Flood resilience

Increase the flood resilience, along the Danube floodplain, by expanding the lateral storage capacity during medium and high waters in the pilot sites.

Drought resilience

Enhance drought resilience by restoring wetlands at the pilot sites to store water effectively at various levels, including the surface, soil, and groundwater table.

Biodiversity net gain

Improve the conservation status of species and habitats from the protected areas.

Climate regulations

Convert arable land and unproductive pasture with no economic value into environmentally beneficial land uses - such as wetlands, forests, and biodiversity-rich habitats, to enhance the 'sponge effect,' reduce carbon emissions, and improve ecosystem resilience.

Inclusivity

Boost the capacity of system actors to navigate changes and collectively steer the system towards a common, sustainable vision.

4.2 SMART Green Deals relevant for the region: secondary goals

Health and well-being

Empower local communities to recognize and utilize wetland ecosystem benefits for their well-being by understanding water's role in meeting their needs, identifying health products derived from wetlands, and assessing wetlands' economic value.

Sustainable Food System

Develop sustainable agricultural practices along the Danube Floodplain that promote the conservation of wetlands by discouraging wetland drainage and improving the management of water resources for wetlands.

Circular economy

Strengthen the circular economy by optimizing water retention and infiltration in the landscape, with a primary emphasis on implementing nature-based solutions (NBs) and adopting sustainable farming practices.

Financing the transition

Attract significant capital for transforming water management infrastructure and promoting water retention-based farming practices among farmers, particularly targeting young farmers.

Green growth

Increase employment opportunities and economic diversification in aging and depopulated rural areas through landscape with a primary focus on promoting tourism and revitalizing the fishery sector.

5 From general goals to actions

5.1 Climate Goal

To reach the climate goal the next actions have been identified to be implemented until 2050:

5.1.1 Project implementation

5.1.2 Deploy off-the shelf monitoring station to collect real-time data

5.1.3 Conduct outreach activities to raise awareness about the importance of NBS floodplain restoration and climate resilience among local communities and various stakeholders.

5.1.4 Partner with scientific authorities and research institutions to develop and test tools for modelling climate change scenarios calibrated for the study area scale

5.2 Biodiversity Goal

To reach the biodiversity goal the following actions have been identified to be implemented until 2050:

5.2.1. Implement the conservation measures of Natura 2000 sites management plans of the from pilot sites

5.2.2. Implement restoration projects in order to improve the ecological status of the water bodies

5.2.3. Declare ”no go areas” to ensure the appropriate space for species and habitat

5.2.4. Restoration of riparian forests using native species (willow, oak, etc.) to provide migration corridor for various species

5.3 Inclusivity Goal

To reach the inclusivity goal the next actions have been identified to be implemented until 2050:

5.3.1 Identify the land owners from the pilot sites who support the implementation of conservation measures on their property

5.3.2 Engage key stakeholders in order to take an active role in promoting the scaling-up of wetlands restoration across the Danube stretch

5.3.3 Cooperate with relevant authorities to implement NBS

5.3.4 Facilitate partnerships and collaborations between system actors from different sectors to encourage diverse perspectives and holistic problem-solving approaches.

5.4 Flood Resilience Goal

To reach the flood resilience goal the next actions have been identified to be implemented until 2050:

5.4.1 Conduct monitoring activities to gain evidence on flood resilience in the pilot sites: indicators that refer to retained water volume and the slowing of velocity

5.4.2 Ecological restoration along the floodplain by creating retention areas using gravitational inundation

5.4.3 Cooperate with relevant authorities to include wetlands restoration in the upcoming Flood Risk Management Plans, River Basin Management Plans & Strategic National Plan of CAP

5.5 Drought Resilience Goal

To reach the drought resilience goal the next actions have been identified to be implemented until 2050:

5.5.1 Restore connectivity and water exchange between the floodplain and the river

5.5.2 Develop policy responses that set catchment limits on water usage

5.5.3 Use wetland monitoring tools to warn of slow onset drought events

5.6 Health and Wellbeing Goal

To reach the health and wellbeing goal the next actions have been identified to be implemented until 2050:

5.6.1. Define, design and implement the ecotourism trails in pilot sites / finalize the cycling route EURO VELO 6 along the Danube River

5.6.2. Conduct studies on health effect of the stored water in the landscape

5.6.3. Offer assistance to farmers for developing new economic activities related to wetlands restoration in the pilot sites.

5.7 Sustainable Food Systems (F2F) Goal

To reach the sustainable food systems goal the next actions have been identified to be implemented until 2050:

5.7.1. Conduct socio-economic study to identify the social attitude towards sustainable agriculture

5.7.2. Advise farmers about the vulnerability of their assets to climate change impacts and support them in identifying appropriate financial tools.

5.7.3 Promote the transition to integrated crop-livestock-fish agricultural practices, or other low input or natural farming systems

5.7.4 Improve institutional and finance frameworks to avoid, mitigate, and offset the adverse effects of agriculture on wetlands and promote sustainable food production

5.8 Circular Economy Goal

To reach the circular economy goal the next actions have been identified to be implemented until 2050:

5.8.1 Increase water capture and infiltration through restoration projects

5.8.2 Cooperate with companies to implement water stewardship programs.

5.8.3 Strengthen and enhance the collaboration among stakeholders

5.9 Financing the Transition Goal

To reach the financing and transition goal the next actions have been identified to be implemented until 2050:

5.9.1. Identify resource requirements including funding to support implementation of sustainable practices and wetlands wise use

5.9.2 Facilitate access to efficient management and use of resources (credit, education, decision making)

5.93 Create investment initiatives that encourage private capital infusion into water management projects and sustainable farming practices.

5.10 Green Growth Goal

To reach the green growth goal the next actions have been identified to be implemented until 2050:

5.10.1. Lobby government to support local development plans based on local economic and community actors' cooperation and local tradition

5.10.2 Update tourism strategy and plans within the region's ecological and socio-cultural capacity

5.10.3 Provide training programs and workshops for local residents interested in entering the tourism and fishery sectors

5.10.4 Foster partnerships between local authorities, community organizations, businesses, and tourism stakeholders

5.11 The responsible stakeholders and their roles

The table below describes the responsibilities of the identified stakeholders:

IDID#	Name of stakeholder	Acronym	Role Implementer, funder, monitor, coordinator
1	Ministry of Environment, Water and Forestry	MoE	Funder, coordinator, monitor

IDID#	Name of stakeholder	Acronym	Role Implementer, funder, monitor, coordinator
2	National Agency for Protected Areas - national level	NAPA	Coordinator, monitor
3	National Agency for Protected Areas - local level	NAPA	Coordinator, implementer, monitor
4	National Administration "Romanian Water" - National Level	NARW	Funder, coordinator, monitor
5	National Administration "Romanian Water" - Jiu sub-catchment level	NARW	Coordinator, implementer, monitor
6	National Administration "Romanian Water" - local level	NARW	Coordinator, implementer, monitor
7	Environmental Protection Agency - national level	EPA	Coordinator, implementer, monitor
8	Environmental Protection Agency - local level	EPA	Coordinator, implementer, monitor
9	Ministry of Agriculture and Rural Development	MoA	Funder, monitor
10	National Agency for Land Reclamation - national level	NALR	Monitor
11	National Agency for Land Reclamation - local level	NALR	Monitor
12	National Agency for Payments and Intervention in Agriculture - national level	NAPI	Monitor, funder
13	National Agency for Payments and Intervention in Agriculture - local level	NAPI	Monitor
14	Farmers Association	FA	Implementer, coordinator, monitor,
15	Local farmers	LF	implementer
16	National Agency for Fishery and Aquaculture - national level	NAFA	Funder, monitor
17	National Agency for Fishery and Aquaculture - local level	NAFA local	Monitor
18	Company managing the Gârla Mare fish farm (Caviar SA)	Caviar	Implementer
19	Company own the Vrata marsh		Implementer
20	County Council Dolj	CC Dj	Funder, coordinator, implementer, monitor
21	County Council Mehedinți	CC Mh	Funder, coordinator, implementer, monitor
22	Mayoralty of Gârla Mare, Vrata, Bechet	MGM	Implementer, monitor
23	Mayoralty of Vrata	MV	Implementer, monitor
24	Local Forestry District	LFD	Implementer, monitor
25	State Inspectorate of Construction	SIC	Monitor
26	Coca Cola HBC Romania	CC HBC	Funder, monitor
27	University of Bucharest	UB	Coordinator, implementer, monitor
28	University of Craiova	UCV	Coordinator, implementer, monitor
29	Lower Danube Administration	AFDJ	Implementer, monitor
30	WWF Romania	WWF RO	Coordinator, implementer, monitor

6 Timeline

Activity	<2024	Period (2-yr interval) 2025-2026	2027-2028	2029-2030	2031-2032	2033-2034	Period (5-yr interval) 2035-2039	2040-2044	2045-2049
5.1 **Climate Goal**									
5.1.1 Projects implementation	x	x	x	x	x	x	x	x	x
5.1.2 Deploy off-the shelf monitoring station to collect real-time data	x	x	x	x	x	x	x	x	X
5.1.3 Conduct outreach activities to raise awareness about the importance of NBS floodplain restoration and climate resilience among local communities and various stakeholders.	x	x	x						
5.1.4 Partner with scientific authorities and research institutions to develop and test tools for modelling climate change scenarios calibrated for the study area scale	x	x	x	x	x	x	x	x	x
5.2 **Biodiversity Goal**									
5.2.1. Implement the conservation measures of Natura 2000 sites management plans of the from pilot sites	x	x	x	x	x	x			
5.2.2. Implement restoration projects in order to improve the ecological status of the water bodies	x	x	x	x	x	x			
5.2.3. Declare ”no go areas” to ensure the appropriate space for species and habitat		x	x						
5.2.4. Restoration of riparian forests using native species (willow, oak, etc.) to provide migration corridor for various species	x	x	x	x	x	x			
5.3 **Inclusivity Goal**									
5.3.1. Identify the land owners from the pilot sites who support the implementation of conservation measures on their property	x	x	x	x	x	x	x	x	x
5.3.2. Engage key stakeholders in order to take an active role in promoting the scaling-up of wetlands restoration across the Danube stretch	x	x	x	x	x	x	x	x	x
5.3.3. Facilitate partnerships and collaborations between system actors from different sectors to encourage diverse perspectives and holistic problem-solving approaches.	x	x	x	x	x	x	x	x	x
5.4 **Flood Resilience Goal**									
5.4.1 Conduct monitoring activities to gain evidence on flood resilience in the pilot sites: indicators that refer to retained water volume and the slowing of velocity	x	x	x	x	x	x	x	x	x
5.4.2 Ecological restoration along the floodplain by creating retention areas using gravitational inundation	x	x	x	x	x	x	x	x	x
5.4.3. Cooperate with relevant authorities to include wetlands restoration in the upcoming Flood Risk Management Plans, River Basin Management Plans & Strategic National Plan of CAP	x	x	x	x	x	x	x	x	x
5.5 Drought Resilience Goal									
5.5.1 Restore connectivity and water exchange between the floodplain and the river	x	x	x	x	x	x	x	x	x
5.5.2 Develop policy responses that set catchment limits on water usage			x	x	x	x	x	x	x

Activity	<2024	Period (2-yr interval)					Period (5-yr interval)		
		2025-2026	2027-2028	2029-2030	2031-2032	2033-2034	2035-2039	2040-2044	2045-2049
5.5.3. Use wetland monitoring tools to warn of slow onset drought events		x	x	x	x	x	x	x	x
5.6 Health and Wellbeing Goal									
5.6.1. Define, design and implement the ecotourism trails in pilot sites / finalize the cycling route EURO VELO 6 along the Danube River		x	x	x	x				
5.6.2. Conduct studies on health effect of the stored water in the landscape			x	x	x				
5.6.3. Offer assistance to farmers for developing new economic activities related to wetlands restoration in the pilot sites.	x	x	x	x	x	x	x	x	x
5.7 **Sustainable Food Systems (F2F) Goal**									
5.7.1. Conduct socio-economic study to identify the social attitude towards sustainable agriculture		x	x	x					
5.7.2. Advise farmers about the vulnerability of their assets to climate change impacts and support them in identifying appropriate financial tools.		x	x	x	x	x	x	x	x
5.7.3. Promote the transition to integrated crop-livestock-fish agricultural practices, or other low input or natural farming systems		x	x	x	x	x			
5.7.4. Improve institutional and finance frameworks to avoid, mitigate, and offset the adverse effects of agriculture on wetlands and promote sustainable food production		x	x	x	x	x			
5.8 **Circular Economy Goal**									
5.8.1. Increase water capture and infiltration through restoration projects	x	x	x	x	x	x	x	x	x
5.8.2. Cooperate with companies to implement water stewardship programs.	x	x	x	x	x	x	x	x	x
5.8.3. Strengthen and enhance the collaboration among stakeholders	x	x	x	x	x	x	x	x	x
5.9 **Financing the Transition Goal**									
5.9.1. Identify resource requirements including funding to support implementation of sustainable practices and wetlands wise use	x	x	x	x	x	x	x	x	x
5.9.2. Facilitate access to efficient management and use of resources (credit, education, decision making)		x	x	x	x	x	x	x	x
5.9.3. Create investment initiatives that encourage private capital infusion into water management projects and sustainable farming practices.		x	x	x	x	x	x	x	x
5.10 **Green Growth Goal**									
5.10.1. Lobby government to support local development plans based on local economic and community actors' cooperation and local tradition	x	x	x	x					
5.10.2. Update tourism strategy and plans within the region's ecological and socio-cultural capacity	x	x	x	x	x	x	x	x	x
5.10.3. Provide training programs and workshops for local residents interested in entering the tourism and fishery sectors		x	x	x	x				

Activity	<2024	Period (2-yr interval)					Period (5-yr interval)		
		2025-2026	2027-2028	2029-2030	2031-2032	2033-2034	2035-2039	2040-2044	2045-2049
5.10.4. Foster partnerships between local authorities, community organizations, businesses, and tourism stakeholders	x	x	x	x	x	x	x	x	x

7 Uncertainties and assumptions, boundary conditions

Romanian legislation includes sufficient levers to support nature restoration. The legislative aspects are supported by the existence of scientific solutions, the existence of funding and the desire of local communities to change the paradigm, but still there are 2 categories of stakeholders that have great resistance to change:

- the authorities in the field of environmental protection/water management – non-acting attitude and slow decision making when it comes about large-scale implementation of nature based solutions
- agricultural authorities and large agricultural companies - these are stuck in the current business as usual model due to the existence of subsidies that do not strongly condition sustainable agriculture and compliance with the ”Do Not Significant Harm” principle.

In addition to these two categories of stakeholders, the fact that the nature restoration and conservation is not understood and considered as an aspect of national interest (overriding public interest) makes it very difficult to achieve the objectives of the Green Deal.

It will likely take several more decades and several episodes of catastrophic floods for authorities to act on a large-scale nature restoration/floodplain restoration.

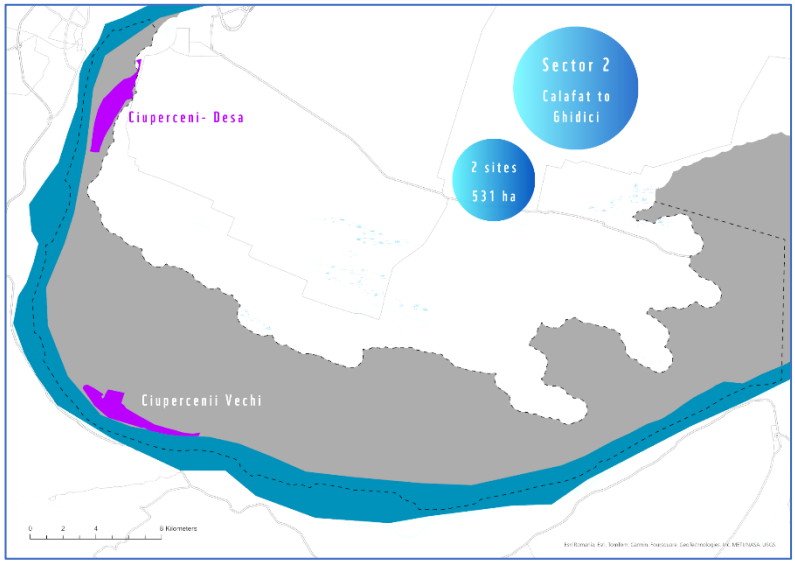
Until then, it needs to continue acting on:

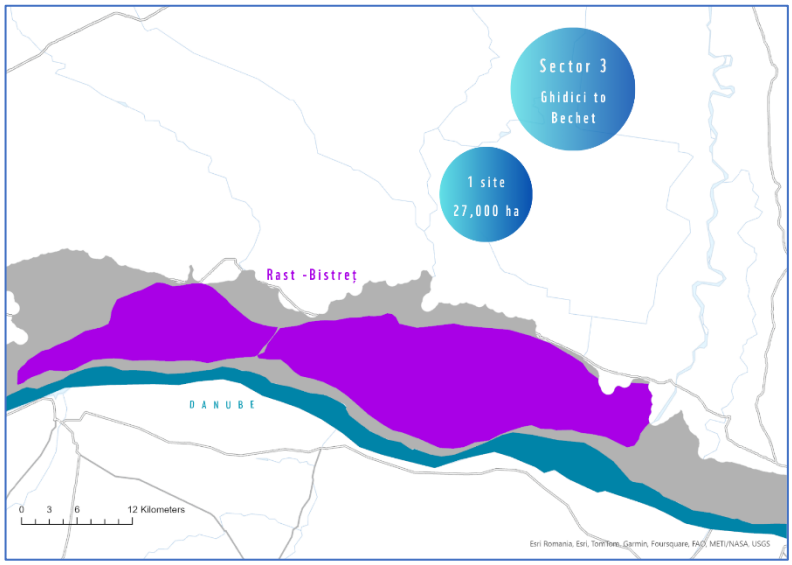
- engage general public to take an active role in demanding nature restoration on large scale
- engage key stakeholders in order to take an active role in promoting the scaling-up
- keep implementing pilot projects to demonstrate the effectiveness of nature-based solutions
- influence strategies and plans

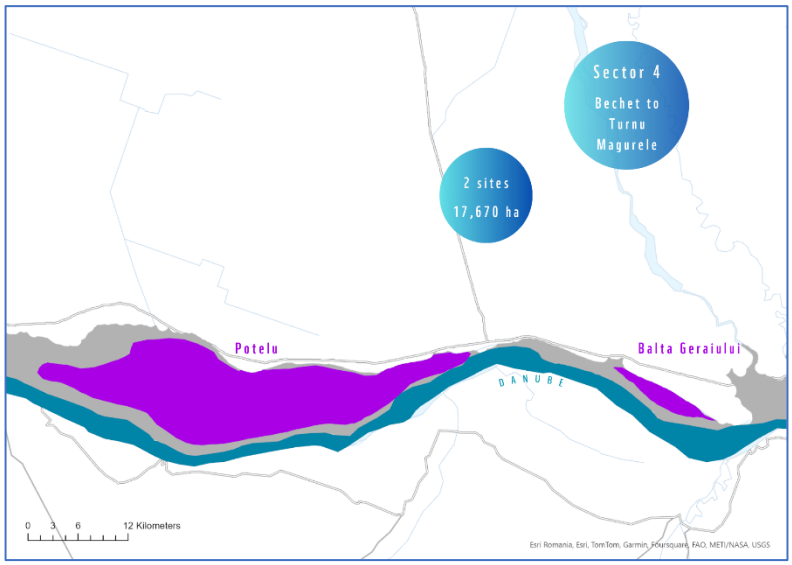
8 Budget

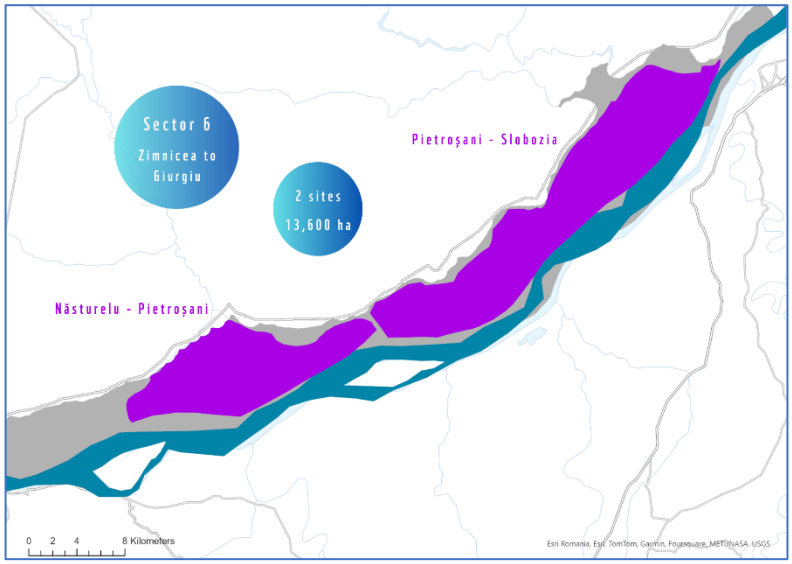
The defined activities at this stage are too general in order to estimate the necessary budget allocation. Only for some specific sites where the pre-feasibility studies for restoration activities have been performed, the estimation costs for restoration are known. It is the case of Bistreț and Potelu, were, the previous activities from other projects managed to identify the preliminary budget: for Bistreț site it was estimated at 40 millions of euro and for Potelu site at 50 millions of euro. The budget other activities and each implementation should be estimated at the next stages of preparation of the restoration measures.

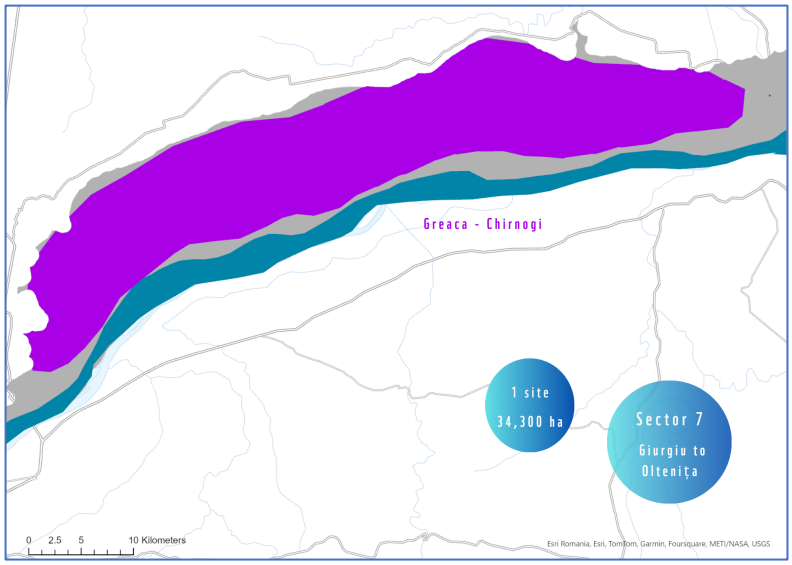
9 Annex

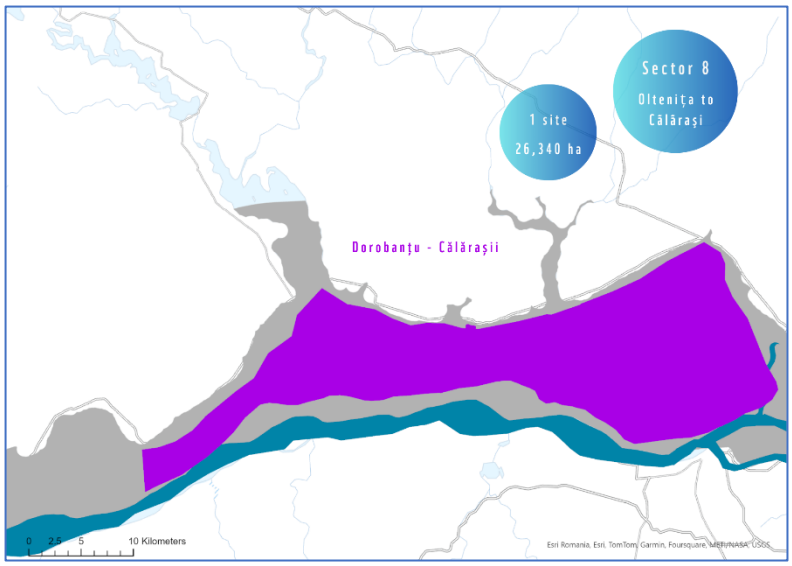

Sector 2
Calafat to Ghidici
2 sites
531 ha
Ciuperceni- Desa
Ciupercenii Vechi
0 2 4 8 Kilometers

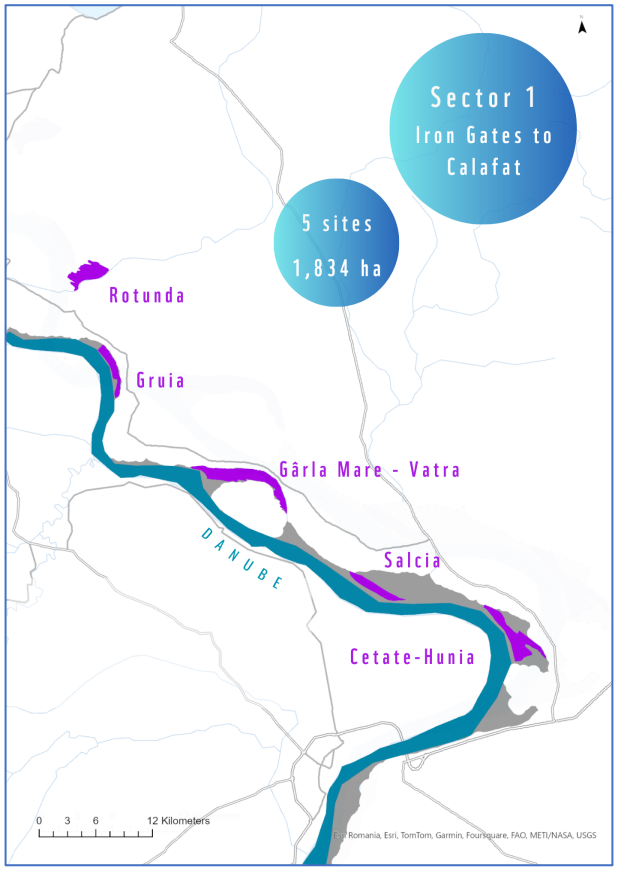

Sector 3
Ghidici to Bechet
1 site
27,000 ha
Rast -Bistreț
DANUBE
0 3 6 12 Kilometers
Esri Romania, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS

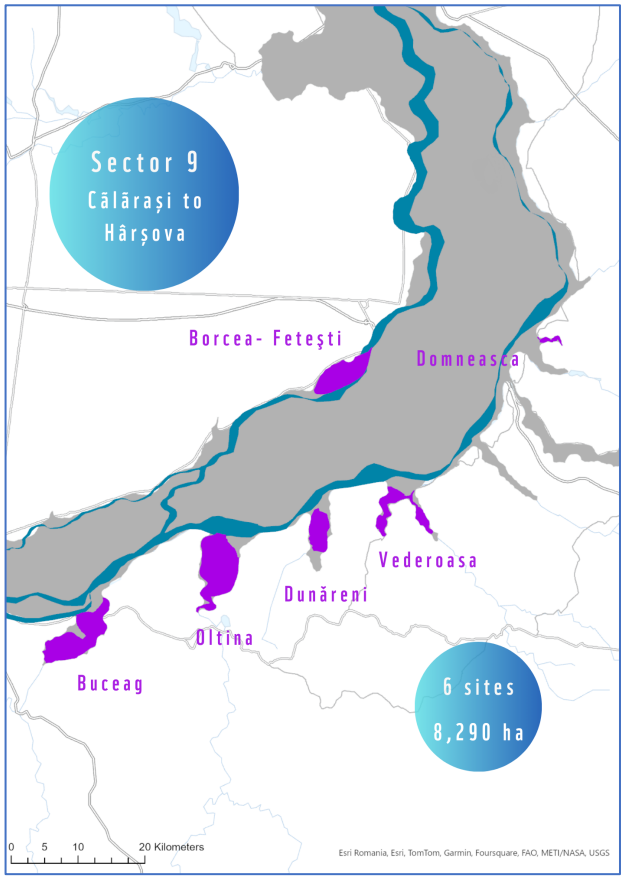

Sector 4
Bechet to Turnu Magurele
2 sites
17,670 ha
Potelu
Balta Geraiului
DANUBE
0 3 6 12 Kilometers
Esri Romania, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS


Sector 6
Zimnicea to Giurgiu
2 sites
13,600 ha
Pietroşani - Slobozia
Năsturelu - Pietroşani
0 2 4 8 Kilometers
Esri Romania, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS


Greaca - Chirnogi
1 site
34,300 ha
Sector 7
Giurgiu to Oltenița
0 2.5 5 10 Kilometers
Esri Romania, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS


Sector 8
Oltenița to Călărași
1 site
26,340 ha
Dorobanțu - Călărașii
0 2.5 5 10 Kilometers
Esri Romania, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS


Sector 1
Iron Gates to
Calafat
5 sites
1,834 ha
Rotunda
Gruia
Gârla Mare - Vatra
DANUBE
Salcia
Cetate-Hunia
0 3 6 12 Kilometers
Esri Romania, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS


Sector 9
Călăraşi to
Hârşova
Borcea- Feteşti
Domneasca
Vederoasa
Dunăreni
Oltina
Buceag
6 sites
8,290 ha
0 5 10 20 Kilometers
Esri Romania, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS