

Wetland adaptation in Attica Region, Greece ^[1]

Image from Climate Adapt about this case study

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The strategy and action plan for the wetland ecosystems in Attica Region (Greece) were developed in the OrientGate project by the Environmental Department of Attica Regional Authority with the scientific support of the Greek Biotope Wetland Centre (EKBV). Based on projections of future drought episodes, as well as on information from operational programmes and actions that are in progress or scheduled by various institutions and organisations, the strategy sets the vision and commitment to conservation and adaptation to climate change of the Attica's wetlands to increase its resilience and reduce biodiversity loss, while making better use of ecosystem services.

The strategy is built on seven axes under which measures with specific priority actions have been determined: the Attica Wetland Action Plan. This strategy also includes some over-arching elements: sustainable management and restoration of wetlands; their interconnection in a "green arc"; the evaluation of the services provided; awareness raising and environmental education in biodiversity and climate change, and citizen participation. The Attica Regional Authority drafted a road map to promote the implementation of selected actions of the Plan under the new National Strategic Reference Framework 2014-2020 or under other funding sources. From September 2015, a project entitled "Improving knowledge and increasing awareness for wetland restoration in Attica Region" is already implementing priority actions".

Case Study Description

Challenges:

The Region of Attica is called on to combine the needs arising from human overpopulation, various human activities and often competitive land use through the proper and sustainable management and protection of the natural environment. Wetlands constitute a significant element of the natural environment, not only as ecosystems for the conservation of different species, but also as part of the water bodies of the region, as recreational areas or even as areas for the development of economic activities, which must be managed and protected by the state. Within the territory of the Region of Attica, there are still more than 100 wetlands including: streams and their estuaries, coastal marshes and lagoons, lakes and constructed wetlands. They now constitute "biodiversity islands" within a broadly degraded environment and offer the inhabitants of the Attica Region the opportunity to stay in touch with nature.

Climate Change is expected to put an additional pressure on these habitats as, based on future climate projections (emission scenarios A1B and A2 were considered by the OrientGate project), Attica's vulnerability to drought is expected to rise from low to moderate by the year 2100. Drought episodes are expected to last longer and occur more frequently than in the past. This phenomenon is expected to have a serious impact on Attica wetlands as most of them are rain-fed. Further, due to the synergy of deteriorating drought conditions and anthropogenic interventions, most of Attica's wetlands are expected to suffer moderate to high impacts.

At the same time, findings show that the agencies involved in the conservation of Attica wetlands have a medium-level adaptive capacity. In particular, there is inadequate knowledge of wetland ecosystems and their services, a lack of experience in the use and interpretation of climatic parameters, a low degree of networking and exchange of experiences and good practices, medium-level operational capacity of the competent agencies and availability of funds for the implementation of adaptation measures. In parallel, however, society is gaining a high level of understanding of the role played by wetlands in the quality of life.

For the purpose of conserving the wetlands of Attica, it is deemed necessary to adopt an adaptation strategy and an action plan which is expected to reduce the impacts on wetlands of the combined effects of anthropogenic interventions and climate change and improve the capacity of involved stakeholders to cope with climate change.

Objectives:

In Attica, more than 100 wetlands have been recorded, which include streams and estuaries, coastal marshes and lagoons, lakes and artificial wetlands. Their importance lies in their ecological and conservation values, as well as ecosystem services to human well-being. Wetland conservation and/or restoration, their use for recreation and environmental interpretation and their connection to a "green belt" in the Attica Region are strategic priorities in view of upgrading the environment and improving the quality of life of citizens of Attica Region. The goal of the OrientGate project was to produce a climate change adaptation strategy and an action plan, which: (i) involve monitoring and assessing of the environmental quality of wetland areas in Attica Region, (ii) study drought deterioration in the future and (iii) put in force the implementation of a series of measures that reduce regional vulnerability of wetlands to climate change.

Solutions:

The Strategy is built on seven axes under which measures along with specific priority measures have been determined in the "Attica Wetland Action Plan":

- AXIS I - Improvement of knowledge for Attica wetlands and the effects of climate change: Measure I-1: Improve knowledge; Measure I-2: Ensure access to data and information and monitor the implementation of the Strategy.
- AXIS II - Conservation and restoration of Attica wetland ecosystems and their services and adaptation to climate change: Measure II-1: Delineate wetlands and designate protected areas; Measure II-2: Protect, guard, conserve and restore; Measure II-3: Conserve and manage sustainably wetlands of the Natura 2000 network.
- AXIS III - Sustainable use of water resources: Measure III-1: Prevent and abate industrial pollution.
- AXIS IV - Land use regulations: Measure IV-1: Promote the concept of compact and non-polluting city.
- AXIS V - Information, awareness, and ecotourism: Measure V-1: Strengthen public information and awareness programs for wetlands in Attica and climate change adaptation; Measure V-2: Education for wetlands and climate change adaptation; Measure V-3: Highlight the wealth of wetlands in Attica, improve recreation and ecotourism opportunities.
- AXIS VI - Improvement of adaptive capacity in regard to wetland conservation and management: Measure VI-1: Improve capacity of public administration and local authorities.
- AXIS VII - Integration of wetland conservation in enterprises: Measure VII-1: Promote wetland conservation and innovative best practices in entrepreneurship.

From September 2015, a project entitled "Improving knowledge and increasing awareness for wetland restoration in Attica Region", is running (co-financed from the European Economic Area Financial Mechanism). Within the project priority actions under Measure I-1 and Measure II-1 are being carried including: (i) Scientific documentation of boundaries delineation of 50 Attica wetlands and development of a draft Presidential Degree for their legal designation according to Biodiversity national law; (ii) Determination of restoration actions for two highly degraded wetland areas; (iii) Measurements on the quantitative status of water in the wetland of the National Park Schinias and development of rehabilitation proposals focusing on wetland water needs; (iv) Gathering and storing of inventory data in a freely accessible web database. Up to the end of the project

(February 2017) three public events will be organized to demonstrate project findings and results and aware on wetland protection and climate change adaptation.

Importance and relevance of the adaptation:

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Additional Details

Stakeholder engagement:

From the beginning of the OrientGate project, Attica Region, engaged a wide range of stakeholders and end users (e.g. central, regional and local services, other authorities, research agencies, environmental organisations and interested citizens) and implemented several awareness actions through media, workshops, training seminars, information meetings and interviews. Thus, the formulated wetland adaptation strategy and plan followed a participative process.

At the end of 2014, a training seminar “Adaptation strategy for Attica Wetlands: The assessment of wetland vulnerability index” and an open dissemination event were held. During the seminar, around 30 participants from public services of Attica Region, NGOs, research institutes, and foreign participants (from Serbia and Romania), received hands-on training on the Wetland Vulnerability Indicator assessment methodology. During the dissemination event, around 80 participants from public services and municipalities of Attica Region, central services of the Ministry of Environment and Climate Change, NGOS, research institutes and from other sectors such as archaeologists, received information on Attica wetland vulnerability due to expected increase of drought and on the adaptation action plan that should be implemented in the coming years.

In 2015, Attica Region carried out the Green Week 2015 satellite event “Raising support to restore the wetland of Brexiza, in the Region of Attica, Greece”, during which almost 90 visitors have come in touch with the biodiversity of Brexiza wetland and the important archaeological site of the Roman great temple of the Egyptian gods. This event opened the dialogue on Brexiza wetland restoration and biodiversity protection and on implementation of the action plan of the newly published Strategy for Attica wetland conservation and adaptation to climate change.

All these events were organized by Attica Region and scientifically supported by the Greek Biotope Wetland Centre (EKBY). Participants were very much motivated and showed strong interest to increase their knowledge and capacity in order to become capable to take action towards climate change adaptation and wetland conservation.

Success and limiting factors:

The factors that were decisive for a successful design of the adaptation strategy and plan include:

- The coordinator of strategy and plan design was the Environment Directorate of the Region of Attica, which has – as a part of its responsibility to specify the environmental policy guidelines at the regional level – focused on the conservation and protection of wetland ecosystems in view of climate change.
- The formulation of the wetland adaptation strategy and plan followed a participative process. There was early engagement and strong collaboration with various end users: central, regional and local services, other authorities, research agencies, environmental organisations and interested citizens. They were encouraged to take action through interviews, information meetings, workshops and training seminars. Experiences were exchanged; weaknesses and good/bad practices in the management and protection of Attica’s wetland wealth were recorded; and the value of conserving wetlands and the need to adapt to climate change were promoted.

There were no significant hindering factors during the elaboration of the adaptation strategy and plan. However, limitations will need to be overcome at the implementation stage of the proposed wetland adaptation action plan. These have their roots in: availability of funds, operational capacity of involved services and bodies to take the proposed adaptation measures, regulation of land uses in view of wetland protection and restoration.

Budget, funding and additional benefits:

The implementation of the proposed action plan is expected to mitigate the impacts on Attica wetlands of the combined effects of anthropogenic interventions and climate change. Improved protection of wetlands is also expected to improve their ecosystem functions, such as: (i) protection of the coasts by reducing the effect of waves and currents; (ii) improvement of water quality by trapping sediments, nutrients and toxic substances; (iii) support to economic activities depending on wetland resources. Other positive outcomes that will derive from the implementation of the action plan include the:

- Improvement of knowledge about climate change and its influence on wetland species, habitats and ecosystem functions;
- Enhancement of environmental awareness and development of information centres.

Legal aspects:

Legislation and strategic, policy and programming frameworks

The Attica Wetland Action Plan integrates measures and priority actions which are foreseen by the existing legislation and fall in existing national strategic, policy and programming frameworks, including:

- The National Operational Plan for the environment (2014-2020), which covers objectives and priority actions for: the waters and the implementation of the Water Management Plans; the conservation of nature and biodiversity through better management of NATURA2000 sites; the promotion of ecosystem services and green infrastructures for climate change adaptation based on natural solutions and for the management of flood risk including actions for the creation of a hydrological database, public awareness, etc.
- The national strategy and action programme on biodiversity, which highlights the need for wetland conservation and adaptation to climate change and includes priorities such as delineation, restoration, research on climate change effects on biodiversity and ecosystems, and promotion of biodiversity islands in urban environments as green infrastructures.
- The national law on biodiversity and in particular the articles that cover the designation of wetlands as protected areas.
- The Master Plan of Athens/Attica 2021, which lists Attica wetlands (including lakes, rivers, streams and their estuaries, springs, lagoons, and coastal marshes) and covers actions for their legal protection and their promotion as green infrastructures.
- The River Basin Management Plan-Attica Water District (in the context of the Water Framework Directive implementation), which includes a specific measure for the restoration and promotion of Attica Wetlands.

Institutional opportunities

The Region of Attica is a Metropolitan Region. It is the first region that has been mobilized towards a climate change adaptation strategy in regard to natural ecosystems, involving local authorities in its area, social groups, environmental organisations and research institutions for the protection of the wetlands in its jurisdiction. Municipalities of Attica Region are mobilized to take adaptation actions in the context of their local operational plans.

Implementation time:

The Strategy and Action Plan were formulated during the OrientGate project: 2012-2014. The first stage of the Action Plan implementation will take five years (2015-2020). The next stage will be planned based on the outcome of the first stage.

Reference Information

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Websites:

<http://www.biodiversity-info.gr/index.php/el> [5]

<https://keep.eu/projects/5955/> [6]

Sources:

South East Europe Transnational Cooperation Programme “A structured network for integration of climate knowledge into policy and territorial planning” OrientGate (2012-2014).

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