

# Implementation of Nature-based Solutions to tackle climate change

*Focus on the Mediterranean region*

22-24 January 2019  
Marseille (France)



## Context

Climate change is causing extreme weather events, such as droughts, flooding, heat waves, and cyclones, and the loss of important biodiversity and ecosystem services all around the world. Greenhouse emissions and environmental degradation are the main drivers for climate change and threat to ecosystems, biodiversity and human wellbeing (IPCC, 2012; Renaud *et al.* 2013).

According to IPCC reports, climate change will have a significant impact on natural resources (e.g. water and forests) in the world. An increase in extreme events (floods, heat waves, droughts, etc.) is expected, and already recorded in some regions, and involves risks in terms of economic losses and threat to human lives. Adaptation and mitigation to climate change are therefore major challenges. According to moderate greenhouse gas emission scenarios, warming in the Mediterranean basin could reach 4°C to 5°C in summer and 2°C to 4°C during other seasons by the end of the century (IPCC, 2013). The scenarios anticipate that by 2100, there will be a continuing decrease in precipitations of up to 40%, depending on countries and seasons, even 50% in some areas on the southern and eastern edges of the Mediterranean rim.

In order to deal with these challenges, it is urgent to develop and share knowledge of the role of ecosystems in climate change mitigation and adaptation. Ecosystems such as forests or healthy wetlands have (1) a direct role in climate regulation by reducing greenhouse gas in the atmosphere through carbon sequestration, and (2) intrinsic properties by providing Ecosystem Services (ES) that constitute a protection against floods, droughts and coastal risks. Restoring and increasing the resilience of ecosystems (Hoffert *et al.* 2002) such as green infrastructure (e.g. green roofs or walls) (Benedict and McMahon, 2006; IUCN, 2016) have been shown to be highly efficient to face environmental, economic and social challenges posed by climate change in natural and urban ecosystems. These strategies are conceptualized as Nature-based Solutions (NbS)<sup>1</sup>.

Nature-based Solutions is an umbrella concept that covers a whole range of ecosystem-related approaches, including Ecosystem based Adaptation (EbA), all of which address societal challenges, such as food security, climate change, water security, human health, disaster risk, social and economic development. They are based on enhancing habitat for biodiversity and other ecosystem services as part of an overall adaptation strategy helping people to adapt to the adverse effects of climate change (Convention on Biological Diversity, 2009). Compared to purely technology-based solutions to climate challenges (i.e., grey infrastructure), NbS for climate change are often lower cost, longer lasting, and have multiple synergistic benefits (tourism, economic activities...) for a variety of sectors and political goals. Nature-based Solutions include three types of actions, which can be combined within the territories: 1) the preservation of ecosystem functionality and resilience; 2) the improvement of ecosystem management for a sustainable use; and 3) the restoration of degraded ecosystems or the creation of new ecosystems.

Currently, responses to climate-related pressures and hazards are often limited to short-term and reactive local emergency measures. European and Mediterranean countries need to turn the challenges they face under a changing climate into opportunities to increase their resilience by addressing the drivers of environment degradation. To set a regional strategic approach to increase the resilience in marine and coastal areas, a Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas was adopted by the 19<sup>th</sup> meeting of the Contracting Parties to the Barcelona Convention (COP 19). Besides, Mediterranean countries under the UNFCCC and Paris Agreement have developed their own National Determined Contributions to undertake rapid climate change mitigation and adaptation actions.

<sup>1</sup> Nature-based Solutions (NbS) aim to use nature in tackling challenges such as climate change, food security, water resources, or disaster risk management (European Commission).

Nature-based Solutions (NbS) are defined by IUCN as "actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits".

## Partners

To promote adaptation and mitigation to climate change based on ecosystems and to facilitate its integration into national climate change adaptation policies, UNEP/MAP Plan Bleu, IUCN Centre for Mediterranean Cooperation, IUCN-France, Tour du Valat, Wetlands International, Conservatoire du Littoral and the Mediterranean Wetlands Initiative (MedWet) have joined forces to create a maximum visibility for Nature-based Solutions in Europe and in the Mediterranean. Each partner has already been working on the topic of NbS independently and this collaboration aims at supporting the implementation of NbS in the region.

**Plan Bleu**, is a Regional Activity Centre of the Mediterranean Action Plan (MAP) of United Nations Environment Programme (UNEP), put in place by France in 1977. Its program of work is approved every two years by the Contracting parties to the Barcelona Convention. Plan Bleu produces studies and scenarios for the future in order to raise awareness of Mediterranean stakeholders and decision-makers regarding environment and sustainable development issues in the region. Plan Bleu has either initiated or participated in several important projects related to NbS in the Mediterranean, such as the Med-ESCWET project on "the economic valuation of ecosystem services provided by wetlands in the context of climate change in the Mediterranean", a project funded by the French Global Environment Fund on "Optimizing the production of goods and services by Mediterranean forests in a context of global changes", an INTERREG-Med project on biodiversity protection which includes information on Posidonia meadows management, and the Communication Campaign on the value of coastal Mediterranean wetlands.

**IUCN** has been involved in multiple programmes and initiatives related to NbS and work to empower civil society for the sustainable use of natural resources through NbS. They have among other things developed a conceptual framework on NbS as an umbrella concept for ecosystem-related approaches, with a clear definition and examples of NbS. At the 2016 World Conservation Congress, IUCN's members adopted a resolution (WCC-2016-Res-069-EN) on a definitional framework for NbS with a set of eight preliminary principles. The resolution defines NbS as "actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits".

**IUCN Centre for Mediterranean Cooperation** (IUCN-Med) and its partners are assessing how countries have integrated ecosystems/Nature-based Solutions within their Nationally Determined Contributions (NDCs), from different perspectives, and how they can build on them further together. IUCN-Med is also identifying specific case studies of NbS, including in urban areas and blue carbon in coastal areas, across the Mediterranean region.

During the UNFCCC COP21, **IUCN France** called for a better integration of the role of ecosystems into strategies to tackle climate change and to invest specifically in NbS. Then, IUCN-France contributed to the adoption of two resolutions during the IUCN World Conservation Congress in 2016. Many projects are already carried out in France implementing NbS but the crucial role of nature in addressing climate change is not recognized enough. IUCN-France is working to bring forward the NbS concept and helping local authorities to better understand and implement NbS within their territories. IUCN-France is also developing operational framework to qualify projects under NbS, in connection with IUCN's Headquarters, in order to launch NbS standards at the World Conservation Congress in Marseille in 2020.

**Tour du Valat** has been working, over the last 6 years, on the restoration of former saltworks and on environmental management and conservation in Mediterranean salt marshes. The current adaptive-restored site is becoming a healthy coastal ecosystem providing a Nature-based Solution to sea-level rise and floods, and also a habitat for important biodiversity. Wanting to encourage NbS through wetland conservation and management worldwide, Wetlands International is working together with Tour du Valat to spread the knowledge and experiences of the restoration of the “Former Saltworks” as a case study for best practices of wetlands as NbS in the Mediterranean.

As the French coastal protection agency, **Conservatoire du littoral** is implementing a sustainable management of coastal areas contributing to adaptation to climate change. Conservatoire du littoral is involved in two main programmes related to NbS in coastal ecosystems. *Adapto* is a LIFE project experimenting solutions to climate change impacts on coastal areas by implementing a flexible coastline management. *Maregot* is an EU Interreg Marittimo project on coastal erosion risk management and transboundary governance between France and Italy. Conservatoire du Littoral is also contributing to building a network of Mediterranean NbS stakeholders.

**Wetlands International - European Association** is an Association of 8 NGOs from 6 European countries, working together to raise awareness about wetland ecosystems and to advocate the sustainable use of wetlands for people and nature, in particular by linking science, policy and practice. The association is working together with support from an EU LIFE grant to raise awareness of the wide range of ecosystem goods and services provided by wetlands. In the framework of the 2018-2019 grant, one of Wetlands International core activities is to disseminate the lessons learned from Mediterranean wetland restoration activities, in coordination with the Tour du Valat Research Institute for the Conservation of Mediterranean Wetlands.

The **Mediterranean Wetlands Initiative MedWet** was established in 1991, and brings together 27 Mediterranean and peri-Mediterranean countries that are Parties to the Convention on Wetlands (Ramsar, Iran, 1971). MedWet works with a large number of partners in the region and participates in the promotion and execution of specific projects to further its mission. MedWet is dedicated to promote and support multi-stakeholders policies and actions on the ground for the conservation, restoration and sustainable use of Mediterranean wetlands.

## Contribution to the international agenda

This workshop aims to capitalize on the outcomes and “lessons learned” from projects that are being carried out in Europe and the Mediterranean by different partners across different ecosystems that vary from coastal ecosystems and forests to urban ecosystems, wetlands and agroecosystems. It also pursues to share European and Mediterranean best practices and challenges in terms of NbS within researchers and wetland managers, to create new collaborations, and to raise the awareness of policy makers on the importance of healthy ecosystems and Nature-based Solutions for effective adaptation to climate change.

This workshop will contribute to the implementation of the Mediterranean Strategy for Sustainable Development, especially SD 2.1 related to the *promotion of the sustainable use, management and conservation of natural resources and ecosystems*, SD 2.3 “[...] *enhance stakeholder awareness on the value of ecosystem services and the implications of biodiversity loss*” and SD 4.1 “*Increase scientific knowledge, raise awareness, and develop technical capacities to deal with climate change and ensure informed*

*decision-making at all levels, recognizing and protecting the climate adaptation and mitigation services of natural ecosystems*”. Long-term collaboration between the partners of this consortium on the topic of NbS implementation will also support progress toward meeting the Sustainable Development Goals (SDGs), especially Goal 13 on climate change action, 14 on ocean conservation and sustainable use, and 15 on protecting, restoring and sustainably using terrestrial ecosystems. It will also fulfill the European Life NGO project objectives on “raising awareness of the wide range of ecosystem goods and services provided by wetlands”. This effort will also contribute to the EU Research and Innovation policy agenda on Nature-based Solutions that aims to position the EU as leader in ‘Innovating with nature’ for more sustainable and resilient societies.

The outcomes of this workshop (including recommendations and best practices) will have major implications, including the provision of support for the chapter dedicated to climate change in the next report on the State of the Environment and Development in the Mediterranean (SoED 2019) produced by MAP components (incl. Plan Bleu), and also a policy paper to be presented at the Barcelona Convention COP21 end of 2019. Another important product will be to enhance the collaboration between major actors in the region towards a better recognition and implementation of NbS in particular during the IUCN World Conservation Congress that will be held in Marseille in 2020.

## Objectives

The overall objective of this workshop is to **highlight the benefits from NbS and the critical role they play in climate change adaptation and mitigation through presentations of various case studies**. Several types of ecosystems will be addressed, such as wetlands, forests, coastal and marine ecosystems, urban ecosystems and agroecosystems, which are known to provide a wide array of services to society worldwide. The workshop will run along three axes:

- Develop criteria to evaluate the quality and benefits of NbS in a case study. This includes evaluating different economic, social and environmental aspects (e.g. replacement values, created natural capital, reduced risk for people and goods, resilient ecological and hydrological function, etc.).
- Demonstrate the previous criteria in multiple case studies, exchange knowledge and experiences with the international community, and discuss how to move from a pilot stage to a “scaled-up NbS application” phase.
- Identify how NbS can be better brought into action (potential barriers, inclusion of the local society, combination of natural restoration and grey or managed systems & opportunities facilitating action for NbS, and potential funding).

## Expected outcomes

The workshop will provide socio-economic insights for appropriate management of different ecosystems, and will result in the following outcomes which will, among other things, feed into the Chapter on Biodiversity of the next report on the State of the Environment and Development in the Mediterranean (2019) produced by MAP components (incl. Plan Bleu):

- 1) A policy paper to support Mediterranean decision-makers in integrating NbS in national climate change adaptation policies;
- 2) Visibility and credibility for NbS case studies to a wide audience, including other European countries outside the Mediterranean, development of a network of partners working cooperatively on NbS implementation;
- 3) Best practices and recommendations to guide NbS project development and implementation.

## Examples of Nature-based Solutions

- River/inland flood risk mitigation (Example solutions: restoring floodplains, inland wetlands, establishing riparian areas, reforestation, vegetation management)
- Urban water and storm water management (Example solutions: conserving/establishing urban parks and greenspaces, riparian areas, green roofs, bioswales)
- Sediment and nutrient pollution control for source water protection/hydropower (Example solutions: upstream forest conservation/restoration)
- Drought risk mitigation (Example solutions: forest management to increase water yield, headwaters grassland and wetland conservation and restoration)
- Agricultural productivity (Example solutions: agroforestry and silvo-pasture systems, restoration of degraded cropland, grassland and pastureland)
- Coastal protection (Example solutions: restoration of wetland to face floods)

# AGENDA

## DAY 1 – Tuesday 22<sup>nd</sup> January 2018

Venue: Townhall of the 1st and 7th District, 61 La Canebière, 13001 Marseille

08:30 - 09:00 REGISTRATION

09:00 - 10:30 INTRODUCTION AND OBJECTIVES

Welcome speech - **Didier Réault**, adjoint au maire, délégué à la Mer, au Littoral, au Nautisme et aux Plages, Marseille mayor office

Welcome note and objectives of the regional workshop - **Elen Lemaitre Curri**, Director, UNEP/MAP Plan Bleu

History and definition of Nature-based Solutions - **Emmanuelle Cohen-Shacham**, IUCN Commission on Ecosystem Management - Intercommissional Nature-based Solutions Thematic Group Lead

Q&A with audience

10:30 - 11:00 *Coffee Break and poster session*

11:00 - 13:00 **SESSION 1 – MAKE THE CASE: BENEFITS OF NATURE-BASED SOLUTIONS IMPLEMENTATION**

Evaluation criteria and instruments to value the contribution of Nature-based Solutions to Climate Change adaptation and biodiversity conservation

Moderator: **Yann Kervinio**, French Ministry of Ecological and Solidarity Transition, General commissioner for sustainable development

Panelists:

- **Jean-Michel Salles**, UMR LAMETA, CNRS
- **Mailys Horiot**, Vertigo Lab
- **Patricia Ricard**, Institut océanique Paul Ricard
- **Sofie Vandewoestijne**, EASME, European Commission

Q&A with audience

13:00 - 14:30 Lunch offered at The Queen Victoria, 1 Place aux Huiles, 13001 Marseille

**14:30 - 17:30 SESSION 2 - NATURE-BASED SOLUTIONS TO MITIGATE AND ADAPT TO CLIMATE CHANGE EFFECTS**

Recommendations on implementing Nature-based Solutions within specific case studies from the European and Mediterranean regions focused on different ecosystems

**Session 2a:**

**Cities, urbanization - The role of NbS to face urban challenges**

Moderator: **Cecilia Gañán de Molina**, expert on regional and urban policies

Case studies:

- **Marie Baduel**, AViTeM
- **Mohamed Fangary**, GIZ - Egypt
- **Elisenda Lurbes**, Barcelona Council
- **Sofie Vandewoestijne**, EASME, European Commission

Group work

**Session 2b:**

**Watershed and wetland management**

Moderator: **Emmanuelle Cohen Shacham**, IUCN Commission on Ecosystem Management

Case studies:

- **Andrea Goltara**, CIRF
- **Ghada Ahmadein**, Arab office for Youth and Environment
- **Ugur Siyami Zeydanli**, Doğa Koruma Merkezi- Nature Conservation Centre
- **Giancarlo Gusmaroli**, European Centre for River Restoration - ECRR

Group work

**Session 2c:**

**Coastal and marine ecosystems**

Moderator: **Aleksandar Rankovic**, IDDRI

Case studies:

- **Marion Coquet**, Conservatoire du Littoral – ADAPTO Project
- **Paul Vertegaal**, Vereniging Natuurmonumenten
- **Maria Otero**, IUCN-Mediterranean
- **Sami Ben Haj**, Thetis-Tunisia

Group work

**17:30 - 18:00 FEEDBACKS AND LESSONS LEARNED FROM THE WORKING GROUPS**



## DAY 2 – Wednesday 23<sup>rd</sup> January 2018

Venue: Townhall of the 1st and 7th District, 61 La Canebière, 13001 Marseille  
and site visit in Camargue

08:30 - 09:00 Welcoming coffee and poster session

### SESSION 3 - HOW TO BRING NATURE-BASED SOLUTIONS INTO ACTION?

Linking practices and policies to bring the necessary conditions for Nature-based Solutions to be implemented

#### 09:00 - 11:30 Session 3a - How can research and stakeholder engagement facilitate Nature-based Solutions implementation?

Moderator: **Pauline Teillac-Deschamps**, IUCN France

Panelists:

- **Xavier Le Roux**, Biodiversa
- **Freddy Rey**, IRSTEA
- **Jean-Michel Pirastru**, Parc Naturel Régional des Alpilles
- **Cy Griffin**, Wetlands International

Q&A with audience

#### 11:30 - 21:00 FIELD TRIP - THE CAMARGUE'S FORMER SALTWORKS NBS PROJECT

##### An open sky laboratory for Nature-based Solutions

Organizer: **Marc Thibault**, Tour du Valat

11:30 – 14:30 Depart from the workshop venue in Marseille by bus and lunch offered at Palissade

14:30 – 17:00 Visit to the former saltworks site

17:00 – 21 :00 Apéro-diner at Tour du Valat, and bus back to Marseille

## DAY 3 – Thursday 24th January 2018

Venue: Townhall of the 1st and 7th District, 61 La Canebière, 13001 Marseille

10:00 - 10:30 Welcoming coffee and poster session

### 10:30 - 12:00 HIGH LEVEL ROUND TABLE: HOW ARE NATURE BASED SOLUTIONS PERCEIVED AND HOW CAN THEIR IMPLEMENTATION BE FACILITATED?

Moderator: **Antonio Troya**, IUCN Centre for Mediterranean Cooperation

Panelists:

- **Gilles Kleitz**, directeur du département Transition écologique et gestion des ressources naturelles de la direction des Opérations de l'Agence Française de Développement
- **Mohamed ENDICHI**, Directeur de la Lutte Contre la Désertification et de la Protection de la Nature, Morocco
- **Hatem Ben Belgacem**, Chief of Service from Direction Général l'Environnement et de la Qualité de la Vie, Ministère des Affaires Locales et de l'Environnement, Tunisia
- **Bernard Cressens**, President of the French committee of IUCN

Q&A with audience

12:00 - 13:30 Lunch offered at The Queen Victoria, 1 Place aux Huiles, 13001 Marseille

### SESSION 3 - HOW TO BRING NATURE-BASED SOLUTIONS INTO ACTION? (CONT.)

Linking practices and policies to bring the necessary conditions for Nature-based Solutions to be implemented

### 13:30 - 15:30 Session 3b - What are the potential policies and the financial instruments which would support Nature-based Solutions implementation?

Moderator: **Puri Canals**, MedPAN

Panelists:

- **Thomas Binet**, Vertigo Lab
- **Aleksandar Rankovic and Judith Voss-Stemping**, IDDRI
- **Susie Dalla-Foglia**, CDC Biodiversité
- **Guillaume Sainteny**, Fondation pour la recherche sur la biodiversité

Q&A with audience

### 15:30 - 16:00 CONCLUSIONS OF THE WORKSHOP

Conclusions of the workshop - **Jean Jalbert**, Director General Tour du Valat

Closing speech - **Sabine Bernasconi**, Mayor of the 1st and 7th districts of Marseille

## Sessions description

### SESSION 1 - MAKE THE CASE: BENEFITS OF NATURE-BASED SOLUTIONS IMPLEMENTATION

**Time Schedule:** DAY 1 - 22<sup>nd</sup> January - 11:00 – 13:00

Nature-based Solutions have for objective to increase the resilience and carrying capacity of urban areas, agricultural areas and other natural and modified ecosystems. How to measure this potential? In this session, we will discuss the evaluation criteria and instruments which can be used to value the contribution of NbS to climate change adaptation (reducing vulnerability and thereby reducing risk) and to biodiversity conservation. Qualitative and quantitative ways to determine how NbS actions are cost-effective and efficient include: spatial and temporal scales definition, impact-evaluation frameworks, trade-offs analysis, economic valuation of ecosystem services (natural capital, ecosystem accounting, avoided costs).

#### Key questions:

- Why favouring the implementation of Nbs in the Mediterranean region?
- How do NbS contribute to climate change adaptation and mitigation?
- How to measure the benefits and challenges related to NbS implementation?

#### Moderator

**Yann Kervinio**, Chargé de mission Forêts Océans / Equipe projet EFESSE au Ministère français de la transition écologique et solidaire, CGDD

#### Panelists:

**Jean-Michel Salles**, Research director, UMR LAMETA, CNRS  
Economics of Ecosystems and Biodiversity (TEEB)

**Mailys Horiot**, Vertigo Lab

**Patricia Ricard**, President, Institut océanique Paul Ricard

**Sofie Vandewoestijne**, project adviser, EASME, European Commission  
EU Research and Innovation Agenda on Nature-based Solutions

## SESSION 2 - NATURE-BASED SOLUTIONS TO MITIGATE CLIMATE CHANGE EFFECTS

**Time Schedule:** DAY 1 - 22<sup>nd</sup> January - 14:30 - 17:30

This session is designed to exchange best practices but also challenges in the application of NbS in the European and Mediterranean context. Different case studies will be shared to exemplify successful NbS, as well as the problems encountered while working with NbS analyzed and finally general recommendations and guidelines for NbS implementation success will be drawn.

This session will be split in parallel working groups with the objectives to

- 1) Create an opportunity for practitioners, scientists, and decision-makers among the Mediterranean to exchange practical experiences on Nature-based Solutions;
- 2) Identify challenges and best practices from the different case studies;
- 3) Expose some solutions to typical problems while working under the NbS concept. For instance, how to assess the economic value of the project, advice on improvement of work strategies;
- 4) Identify and create a network for future projects.

### Key questions:

- What are the advantages of Nature-based solutions?
- How can you describe the social and economic benefits of the NbS?
- How can you evaluate/assess/quantify the biodiversity benefits of the NbS?
- Which kind of stakeholders are or were involved to guarantee the success of your NbS?
- Which problems do you encounter in your project? What are the potential solutions?
- What are the lessons learned from the success of your project?

### Session 2a : Cities, urbanization - The role of Nature-based Solutions to face urban challenges (focus Mediterranean)

Currently 60% of the Mediterranean's population is living in urban areas. With one of the fastest urbanisation rates worldwide, the region's urban population is expected to increase by an additional 22.5 million by 2030, due to persistent rural-urban migrations and endogenous urban growth. Mediterranean cities are also experiencing high vulnerability to the effects of climate change such as water scarcity, droughts, forest fires and heat waves. With a considerable diversity of economic, social and environmental contexts, there is no one-size-fits-all NbS policy framework in the Mediterranean cities; but a range of potential tools which may be employed in different urban scenarios and contexts. Furthermore, the integration of NbS in existing policy frameworks is still facing some difficulties, mostly related to the absence of effective integrated urban policies.

Our guest panelists proceed from different cities of the Mediterranean, and they will intend to provide a geographically balanced overview of the state of the art regarding NbS implementation in the urban areas of the region.

The selected case studies have a clear link to the urban biodiversity protection and/or the urban regeneration and ecological restoration; and all of them have the potential to support key societal challenges such as human health, food security, climatic resilience or water security.

**Moderator:**

**Cecilia Gañán de Molina**, international consultant expert on regional and urban policies

**Panelists:**

**Elisenda Lurbes**, Biodiversity programme, Barcelona Council

Trees Master Plan, Barcelona - The Trees Master Plan 2016-2035 has the overall aim of maintaining a well-managed, healthy and biodiverse woodland to improve green corridors and tackle the urban heat island effect

**Marie Baduel**, Strategy Director of AViTeM, l'Agence des Villes et Territoires Méditerranéens Durables Metropolitan agriculture and Nature-based Solutions in Marseille

**Mohamed Fangary**, Head of Monitoring & Evaluation, Visibility and Climate Change Unit, GIZ, Egypt Urban Agriculture in the Greater Cairo Region - Cairo is predicted to remain the largest city of the Arab region, growing to 16 million inhabitants in 2050. Over the past decades the mean annual air temperature in the Greater Cairo Region has been steadily rising and is expected to rise further. The Example of Rooftop Farming in Informal Settlements" aimed to exemplify the use of rooftop farming to reduce climate vulnerability in informal settlements

**Sofie Vandewoestijne**, project adviser, EASME, European Commission  
EU R&I agenda on Nature-based Solutions: urban case studies

**Session 2b: Watershed and wetlands management**

Healthy and climate-adapted wetlands are decisive Nature-based Solutions to environmental and societal climate change issues. They have multiple capacities such as coastal protection, biodiversity support, carbon sequestration and flood regulation. They also provide other valuable ecosystem services like water quality protection (Verhoeven et al., 2006) and contaminant retention (Johnston, 1991). We propose to stimulate discussions on how to implement NbS to promote wetland functions (biodiversity and climate change mitigation) through management, restoration and creation.

Topics to be addressed:

- river restoration
- watershed management (forest)
- agroecosystem management to limit drought and improve water resources management

**Moderator:**

**Emmanuelle Cohen-Shacham**, IUCN Commission on Ecosystem Management - Intercommisssional Nature-based Solutions, Thematic Group Lead

**Panelists:**

**Andrea Goltara**, general manager, Italian Centre for River Restoration CIRF

The HyMoCARES project: Improving hydromorphological management of alluvial rivers

Topic: alluvial rivers, river restoration

**Ghada Ahmadein**, Education and Sustainable Development officer, Arab Office for Youth and Environment

Collecting and preserving scarce natural range seed plants (Matrouh (Egypt)). Development of natural pasture in a large area of land and the conservation of some significant extinct species with the benefits for Bedouins.

**Uğur Siyami Zeydanlı**, Head of Board, Doğa Koruma Merkezi- Nature Conservation Centre  
The Adaptation of Forest Ecosystems and Forestry to Climate Change in the Seyhan Basin. The project focuses on sustainable use of forest resources by putting in its center the long term impacts of climate change on forests

**Giancarlo Gusmaroli**, Board member, European Centre for River Restoration – ECRR  
An outlook on river restoration at EU Mediterranean scale: state of art and open challenges  
Topic: River restoration

## Session 2c: Littoral, coastal and marine ecosystems

Coastal and marine ecosystems are decisive to reduce the causes and impacts of climate change. They have multiple capacities such as coastal protection, biodiversity support, carbon sequestration and flood regulation. The coastline is a moving space, subject to the forces of the sea, wind and coastal rivers. Over the centuries, many activities have been developed on the coast secured by a control of the natural evolution of the coast. Today the logic is reversed: with climate change and the progressive sea level rise, the coastline can no longer be based solely on a rigid defense of the coastline. Space must be given to natural phenomena, using the environment as real buffer zones for hazards. Preserve and enhance natural coastal areas constitutes an effective and inexpensive solution to mitigate the effects of climate change and adapt. Marine ecosystems and oceans also play a key role in mitigating climate change and reducing its impacts on ecosystems (mainly sea level rise, ocean acidification and ocean water warming). Our panelists will intend to provide an overview of the state of the art regarding NbS implementation in coastal and marine areas.

### **Moderator:**

**Aleksandar Rankovic** - IDDRI

### **Panelists:**

**Marion Coquet**, ADAPTO project, Mediterranean manager, Conservatoire du Littoral  
ADAPTO project, France. Adapto is a LIFE project exploring solutions to climate change impacts on coastal areas by implementing a flexible coastline management. The free evolution of the coastline within an extensive coastal area helps to balance sediments transportation, to absorb the sea energy during storms, and reduce coastal risks. An analysis of the coastal territory and the implementation of experimental tools are conducted on 10 pilot sites in France, including 3 pilot sites in the Mediterranean.

**Paul Vertegaal**, Advisor Water and Public Affairs, Vereniging Natuurmonumenten (Society for preservation of nature monuments in the Netherlands)  
“Natural Climate Buffers in the Netherlands – a multiple benefit approach”: restoring natural areas so they can store water and in this way preserve urban and farming areas, moving dykes to open up some free space for rivers and mitigate flooding, restoring coastal salt marshes and reviving their sediment dynamics to offset the rising sea level, and re-establishing hydrological connections for migratory fish

**Maria Otero**, Life blue nature, IUCN Center for Mediterranean Integration  
The LIFE Blue Natura project’s main aim is to quantify the carbon deposits and the sequestration rates of marsh and seagrass meadow habitats in Andalusia. An emphasis is placed on what is accumulated under the ground or sea, as well as analyzing predicted future developments, from the carbon loss rate, to potential carbon fixation and accumulation rates, and the emission/sequestration ratio of carbon from

damaged meadow zones into the atmosphere.

**Sami Ben Haj**, Coastal conservation consultant, Thetis-Tunisia

Rehabilitation of the coastal dune ecosystem of the Commune of Corso (Algeria)

The project aimed to safeguard the protected natural space, consisting of a vulnerable coastal dune ecosystem that is particularly exposed to high urban and socio-economic pressures (tourism), whose biodiversity is threatened. It involves diagnosing the current ecosystem, especially the coastal dune, identifying the causes and pressures suffered, and the degradations observed, in order to propose an integrated approach for preserving biodiversity and rehabilitating the ecosystem and the site.

## SESSION 3 - HOW TO BRING NATURE-BASED SOLUTIONS INTO ACTION? LINKING PRACTICES AND POLICIES

**Time Schedule:** DAY 2 – 23<sup>rd</sup> January - 09:00 - 11:30 and

DAY 3 – 24<sup>th</sup> January - 13:30 - 15:30

The implementation of NbS is essential to address the major contemporary challenges like climate change, water access, health. The responses required to these challenges essentially involve creating favorable conditions for NbS to be equitably considered alongside other options. The implementation of NbS so far has been slow since the evidence base needs to be built, new approaches in integrating living systems with built systems (innovative combinations of soft and hard engineering) need to be developed as well as financial and institutional arrangements to create opportunities, incentives, and legal frameworks.

The four main conditions for NbS to be equitably considered are to:

- improve intersectoral collaboration;
- improve the knowledge base;
- mobilize and leverage financial resources;
- create a favorable regulatory and legal environment.

The first part of the session (Session 3a) will address the intersectoral collaboration and the knowledge development, while the second part of the session (Session 3b) will address the financial instruments available, and the adaptation of the regulatory and legal framework.

### Session 3a - How can research and stakeholder engagement facilitate Nature-based Solutions implementation?

**Time Schedule :** DAY 2 – 23<sup>rd</sup> January – 09:00 - 11:30

The implementing of NbS can indeed be challenging as they imply specific technical knowledge plus the acknowledgment of the environmental, social and economic interactions of the site. NbS implementation requires linking different issues that are usually dealt with separately, such as the choice of natural solutions over the usual grey ones.

To address these challenges and support the dissemination of NbS projects, we propose to work on two aspects here:

- Knowledge and research: how research projects can inform us on how NbS should be implemented on the field and what benefits they provide;
- Governance and stakeholder engagement: how bringing together different kinds of stakeholders can lead to decompartmentalisation of policies and decisions to minimize trade-offs and guaranty NbS acceptance

**Key questions:**

- What aspects from research should be looked at before setting a NbS project?
- Which type of monitoring is needed to highlight NbS benefits for biodiversity and climate change adaptation?
- Which stakeholders should be involved in order to guarantee the success of NbS implementation?
- How and when should such stakeholders be involved in the project?

**Moderator :**

**Pauline Deschamps-Teillac**, Ecosystem Programme Manager, IUCN France

**Panelists:**

**Xavier Le Roux**, Senior Scientist, Biodiversa

NbS research at the European level within BiodivERsA: promoting stakeholder engagement to increase impact

**Jean Michel Pirastru**, Chargé de mission Conservation des espèces et des habitats naturels sensibles, Parc Naturel Régional des Alpilles

Participation and appropriation of Nature-based solutions to reduce flood risks and forest fires in the Alpilles

**Cy Griffin**, Wetlands International

Implementing practical restoration work to strengthen wetlands' capacity to adapt to and mitigate climate change

Topic : Research and stakeholder involvement in Europe

**Freddy Rey**, Research director, IRSTEA

Nature-based solutions for reconciling natural hazard control and ecological restoration: from research to practice

**Session 3b - Financial instruments and policy framework to facilitate Nature-based Solutions implementation**

**Time Schedule :** DAY 3 - 24<sup>th</sup> January - 13:30 - 15:30

This session will present the different financial instruments available for the policy makers to develop favorable conditions so that NbS are taken into account in the same way as other solutions.

NbS do not necessarily require additional financial resources, but rather rely on reorientation and more efficient use of available resources. Investments in green infrastructure result from a growing awareness of the capacity of ecosystem services to provide system-wide solutions that, over time, can make investments more sustainable and profitable.



Several financial instruments and measures are available and could be presented during this session:

- Ecosystem Services Payment Schemes (PES) provide incentives, both monetary and non-monetary, to upstream communities, farmers and landowners for the protection, restoration and conservation of natural ecosystems, and provide for use of sustainable farming practices and land. These measures provide benefits to downstream water users through, among other things, regulation of water use, flood control and erosion and sediment control, while ensuring adequate water supply, water quality and reduced costs for water treatment and infrastructure maintenance.
- An emerging market of "green bonds" shows a promising potential for mobilizing NbS financing and, to demonstrate that NbS provide good returns when evaluated against stringent standardized criteria for investment performance.
- The private sector could also be encouraged and steered further to promote NbS in the sectors in which it operates. The development of new internal skills and an awareness of the effectiveness of the NbS could foster this development.
- The transformation of agricultural policies is one of the main ways to finance and adopt NbS. This implies overcoming the principle that the overwhelming majority of agricultural subsidies support the intensification of traditional agriculture, whose practice encourages the increased insecurity of water. The integration of the concept of sustainable ecological intensification of agricultural production, which consists mainly of the use of NbS (e.g. the use of improved soil and landscape management practices), is not only a proven way to ensure food security, but would also be a major step towards NbS funding for water management.

**Key questions:**

- What are the financial instruments available for the policy makers to develop favorable conditions so that NbS are implemented?
- What could be a favorable regulatory and legal environment to favor the NbS implementation?
- How could this policy framework be put in place?

**Moderator:**

**Puri Canals**, President, MedPAN

**Panelists:**

**Thomas Binet**, President, Vertigo Lab  
Ecosystem Services Payment Schemes (PES)

**Aleksandar Rankovic and Judith Voss-Stemping**, IDDRI

**Susie Dalla-Foglia**, Chargée de mission, CDC Biodiversité

**Guillaume Sainteny**, Fondation pour la recherche sur la biodiversité  
Biodiversity offsets

## HIGH LEVEL ROUND TABLE: HOW ARE NATURE-BASED SOLUTIONS PERCEIVED AND HOW CAN THEIR IMPLEMENTATION BE FACILITATED?

**Time Schedule:** DAY 3 - 24th January - 10:30 - 12:00

The Paris Agreement requires all Parties to elaborate mitigation and adaptation plans in a Nationally Determined Contribution (NDC) document submitted to UNFCCC that will be revised in every five years. Governments are invited to determine the role of Nature-based Solutions in this NDC. The NDCs have a more general scope for countries wishing to mobilize ecosystems in their climate strategies and to develop synergies with their biodiversity conservation policies. At Mediterranean level Morocco and Tunisia are the two Mediterranean countries that have given the greatest attention to NbS-type measures in their NDCs. They are currently working on a roadmap as to identify and draft project proposals on NbS within their NDC to be submitted to international donors.

In Europe, the European Commission is leading the way with a specific research programme and Innovation policy agenda on NbS and Renaturing cities, Horizon 2020, which aims at achieving more sustainable and resilient societies through "innovation with nature" and forging strong partnerships to transfer Europe's knowledge.

NbS could contribute to repackage policy debates on biodiversity conservation, climate change, food security, public health, social justice and green economy. Its governance will require the involvement of multiple social and political actors, and bridging mechanism to align sectoral policies, and mobilize the private sector which could be yet particularly risky and expensive.

In the guidelines of the NbS policy platform, practitioners are advised to increase implementation of NbS across the globe and share best practice and learning on what makes NbS effective (or otherwise); they should ensure that this knowledge informs the development of robust targets and shapes not only the redrafting of the NDCs in 2020 but climate change planning and policy in general.

### Key questions:

- How would you position NBS in the context of multiple overlapping concepts and different policy frameworks?
- How do you view the role of state agencies or public institutions in nature-based interventions? How are your institutions currently promoting or developing the implementation of this concept?
- How can we better understand and explain the range of possibilities and the cost-benefits of these green alternatives in comparison with other more traditional interventions?
- Increasing the uptake of nature-based solutions requires greater collaboration among different policy areas, sectors and stakeholders. How can the public sector encourage the engagement of private sector in NBS implementation?

**Moderator:**

**Antonio Troya**, Director, IUCN Centre for Mediterranean Cooperation

**Panelists:**

**Gilles Kleitz**, directeur du département Transition écologique et gestion des ressources naturelles (NAT) de la Direction des Opérations (DOE) de l'AFD Agence Française de Développement, France  
*"Solutions Fondées sur la Nature: le temps de l'action"*.

**Mohamed Endichi**, Directeur de la Lutte Contre la Désertification et de la Protection de la Nature, Morocco

**Hatem Ben Belgacem**, Chief of Service from Direction Général l'Environnement et de la Qualité de la Vie, Ministère des Affaires Locales et de l'Environnement, Tunisia

**Bernard Cressens**, President of the French committee of IUCN

## FIELD TRIP - THE CAMARGUE'S FORMER SALTWORKS NBS PROJECT AN OPEN SKY LABORATORY FOR NATURE-BASED SOLUTIONS

**Time Schedule:** DAY 2 – 23<sup>rd</sup> January - 11:30 - 21:00

**Organizer:** Marc Thibault, Tour du Valat

The Rhône river delta - also called the Camargue – is located on the Mediterranean coast of southern France, west of Marseille. It covers 140,000 hectares, comprising agricultural lands and an outstanding diversity of wetland and coastal ecosystems. Economic activities include tourism, cattle breeding and cultivation, salt production, commercial hunting and fishing, whereas large-scale industry and shipping activities are developed in the delta outskirts. With a majority of its sandy coastline already affected by erosion, this low-lying territory is severely exposed to the effects of climate change, especially sea-level rise.

Reclaimed and transformed for industrial salt production from 1950s, the Camargue former saltworks site (5300 hectares) was purchased by Conservatoire du littoral between 2008 and 2012 and is now jointly managed by Parc naturel régional de Camargue, Tour du Valat research institute and Société nationale de protection de la nature NGO. The former NbS salt works project currently underway is helping to adapt the Rhône Delta to sea-level rise by implementing an accommodation space strategy (in resilient and functional wetlands) to cope with sea floods through. The buffer-zone creation and ecosystem restoration includes hydrological reconnections with surrounding wetlands ecosystems, and a scientific monitoring of the evolution of the coast and the state of the ecosystem. This project restores coastline mobility by favoring the reinforcement of an inland protection dike rather than the maintenance of infrastructures on the coastline. This contributes to reducing grey infrastructures investments and maintenance costs related to disaster risk management in the Camargue. Results of ecological monitoring show encouraging trends including an improved ecological status of coastal lagoon ecosystems, the restoration of a fish migration path between the sea and the inland lagoons and the on-going restoration of hundreds of hectares of Mediterranean halophilous scrubs and annual *Salicornia* saltmarshes.



**11:30 - 13:00 DEPART FROM THE WORKSHOP VENUE, MARSEILLE**

One bus crossing the Rhône by the ferry

Participants will be divided into groups

*Be sure to wear warm clothing including a good jacket to protect you from the wind, trousers and comfortable shoes for walking. A cap or hat and sunscreen are recommended.*

**13:00 - 14:30 LUNCH AT PALISSADE**

**14:30 - 17:00 VISIT TO THE FORMER SALTWORKS SITE**

**17:00 - 18:00 ARRIVING AT TOUR DU VALAT**

Welcome words from Jean Jalbert, director, Tour du Valat

Discussions on the experiences presented

**18:00 - 19:30 APÉRO –DINNER AT TOUR DU VALAT**

**19:30 - 21:00 RETURN TO MARSEILLE**

Bus ride back to Marseille

