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# The legal regime of Nature-based solutions for Agriculture adaptation

CONTENT 3 Climate-Smart Agriculture: legal aspects of a new model  
of agriculture in the EU

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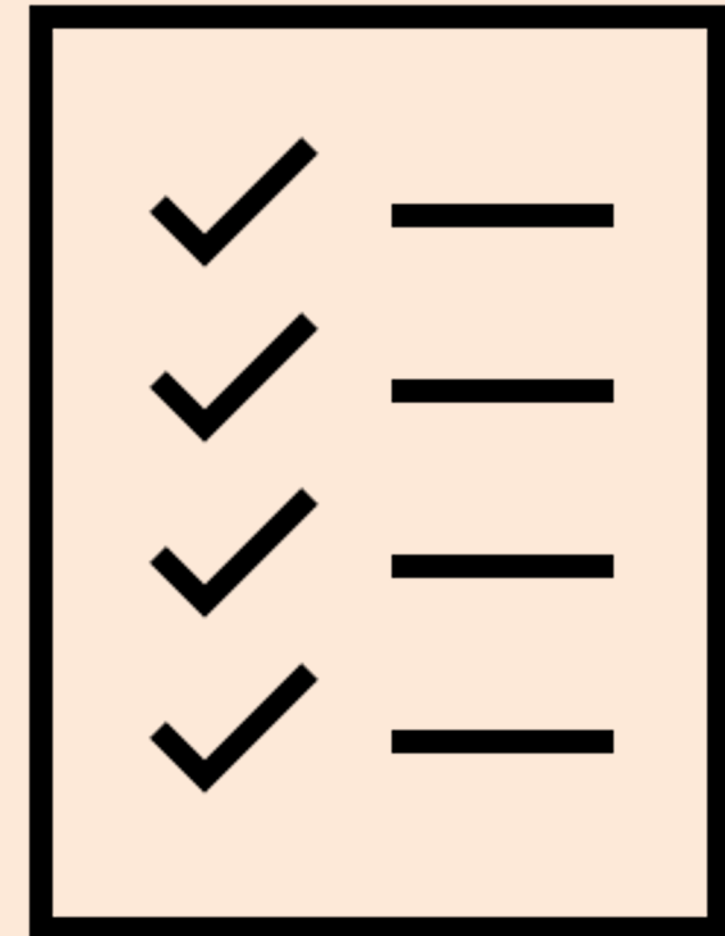
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# Program

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1. Premises - The biodiversity loss and the climate crisis threaten food security: the role of Nature
2. What are NBS - Definitions
3. NBS in the International legal framework
4. NBS in the Agri-food sector: Opportunities and limits





## The biodiversity loss and the climate crisis threaten food security: the role of Nature

The demand from the agri-food system has increased enormously in the last decades. The natural ecosystems are extremely stressed by a series of factors:

- The rise of average +1 C° since preindustrial time and the CO<sub>2</sub> concentration reached levels higher than in the last 800.000 years this is already affecting food security through increasing temperatures, changing precipitation patterns, and greater frequency of extreme events (IPCCC Report, 2022).
- There will be nearly 10 billion people on Earth by 2050—about 3 billion more mouths to feed than there were in 2010 (FAO, 2021).
- Increasing overexploitation of biosphere Natural capital is exacerbating soil and water pollution, soil acidification, salinization, and nutrient depletion. (FAO,2018)
- Up to 52% of global agricultural lands are now moderately to severely degraded, with millions of hectares per year degrading to the point they are abandoned by the land manager. The loss of productive land, coupled with increased food demand, pushes agriculture to be the primary driver in 80%



Food systems are responsible for around a third of all greenhouse gas emissions, land use change and unsustainable land management are the main driver of biodiversity loss.

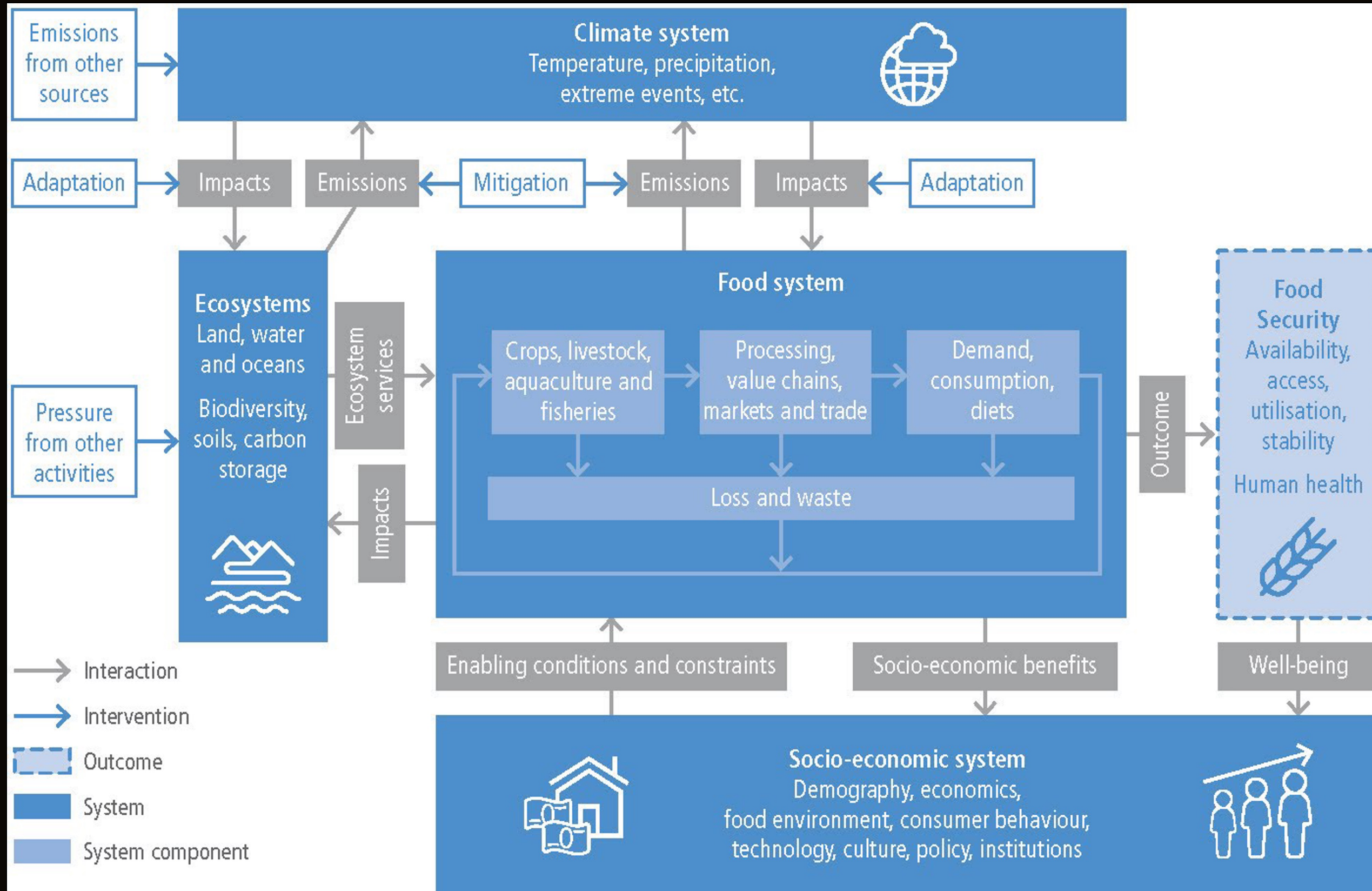
As the IPCC recently put it:

*“while agricultural development contributes to food security, unsustainable agricultural expansion, driven in part by unbalanced diets, increases ecosystem and human vulnerability and leads to competition for land and/or water resources”.*

Food production is at risk due to the climate and biodiversity crises which are in turn fuelled by current industrial agricultural practices and consumption patterns. To ensure food security, a radical shift to agro-ecological practices and a transition to sustainable diets, particularly by drastically cutting meat and dairy consumption in the Global North is needed. (IPCC Climate change and Land Special report 2019)



- Extreme climate events like heat waves, droughts, floods, storms, and forest fires produce direct impacts on living conditions, cause the reduction of agricultural yields, the destruction of homes and infrastructures as well as the indirect impacts resulting in the increase in food prices and food insecurity. (Sendai Framework, 2015)
- Many **land-related responses** that contribute to climate change adaptation and mitigation can also combat desertification and land degradation and enhance food security. The potential for **land-related responses** and the relative emphasis on adaptation and mitigation is context specific, including the adaptive capacities of communities and regions.
- Food production **fundamentally depends upon healthy ecosystems** due to the many ecosystem services biodiversity provides, including healthy soils, abundant fish stocks and Nature restoration and food security: Why bringing back nature cannot wait - 4 pollination. 85% of the main types of global food crops, mostly fruits and vegetable crops, rely on pollination for yield and/or quality (IPBES, 2020)



Interlinkages between the climate system, food system, ecosystems (land, water and oceans) and socio-economic system.

These systems operate at multiple scales, both global and regional. Food security is an outcome of the food system leading to human well-being, which is also indirectly linked with climate and ecosystems through the socio-economic system.

Adaptation measures can help to reduce negative impacts of climate change on the food system and ecosystems. Mitigation measures can reduce GHG emissions coming from the food system and ecosystems.



To sustain the future of our food and by extension human life, a widespread and high-level call urge for a transition in the way we adapt to climate change and therefore the way we produce our food.

# What are the Nature-based Solutions? How do they work in relations with Agri-food sector and the Climate and biodiversity crisis?

Nature-based Solutions (NbS) seek to maximize the ability of nature to provide ecosystems services that help to address societal challenges such as climate change, food security or natural disasters.

These policy options, called “nature-based solutions” involve a broad series of actions that utilize and engage nature:



IUCN Agriculture land restoration project in Zimbabwe 2015

- **Protection and conservation** of Natural Ecosystems
- **Restoration** of natural and semi-natural ecosystems
- **Sustainable management** of our working land, our timberlands and croplands
- **Creation of new ecosystem** – particularly promising are the urban area projects through green and blue infrastructure creation.





Mecklenburg (Germany) peatland restoration for Agriculture purpose

Nature-based Solutions (NbS) offer a reassuring contribution on how to **enhance the availability and quality of food** for productive and human consumption purposes while simultaneously providing environmental, social, and economic benefits, helping to build resilience and striving to preserve the integrity and intrinsic value of the ecosystems.

NbS make a valuable contribution to address three of the most important challenges of climate change:

- 1) Mitigation of greenhouse gas (GHG) emissions.
- 2) Adaptation to current and projected changes in climate.
- 3) Risk reduction due to extreme weather events.

Good or bad use and management of ecosystems and the services they provide can increase or alleviate these challenges.



## VIDEO: WHAT ARE NBS:Oxford NbS Initiative

## Nature-based Solutions | Resilience: The Global Adaptation Podcast – UN Environmental Program



## What is ecosystem-based adaptation? - UN Environmental Program

## Definitions of NbS



NbS are recognized by many scholars as an **umbrella concept** embracing a number of different ecosystem-based approaches. These NbS approaches include for example ecological restoration, ecological engineering, forest restoration, ecosystem-based adaptation, nature-climate solutions, regenerative agriculture, ecosystem-based mitigation, ecosystem-based disaster risk reduction.

For this reason, the definition of nature-based solutions has long been the subject of debate with many voices sitting at policymakers' negotiating tables offering one perspective over another. It is important to align definitions around NbS and establish consensus terminology for different types of nature-based interventions as well as for monitoring and evaluation.



## DEFINITION

The most used definition is the one adopted by the International Union for Conservation of Nature (IUCN) when the NbS became a major pillar of their work – and it has been ever since. Their definition adopted in 2016 with the resolution WCC-2016-Res-069 stated that NbS are:

**“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 Resolution WCC-2016-Res-069](#)



## DEFINITION

This definition considers three kind of actions of NbS "protect", "manage" and "restore" without considering the creation of Ecosystems (like the blue/green infrastructure).

The terms used to describe how NbS address societal challenges (Environmental, economic and social challenges) are "effectively" and "adaptively". These terms aim to emphasize the dual function on NbS respectively as mitigation and adaptation actions.

The use of the expression "benefits" is the first real shift to the anthropocentric narrative of "ecosystem services" that are substituted by NbS as a major actor that are able to address societal challenges and simultaneously provide benefits to Human-well being and biodiversity (humans are just one of the beneficiaries of the benefits).



## DEFINITION

In the resolution the IUCN also described a set of **8 principles for NbS**:

- I. NbS embrace nature conservation norms (and principles);
- I. NbS can be implemented alone or in an integrated manner with other solutions to societal challenges (e.g. technological and engineering solutions);
- I. NbS are determined by site-specific natural and **cultural contexts** that include traditional, local and scientific knowledge;
- I. NbS produce **societal benefits** in a fair and equitable way in a manner that promotes transparency and **broad participation**;
- I. NbS maintain **biological** and **cultural diversity** and the **ability of ecosystems to evolve** over time;
- I. NbS are applied at a **landscape scale**;
- I. NbS recognise and address the **tradeoffs** between the **production of a few immediate economic benefits** for development, and **future options** for the **production of the full range of ecosystems services**;
- I. NbS are an **integral part** of the overall design of policies, and measures or actions, to address a specific challenge.



EUROPEAN  
UNION  
DEFINITION



EU,2015

The definition adopted by the EU Commission in 2015 (EU,2015) defined NbS as:

*“Solutions that are **inspired and supported by nature**, which are **cost-effective**, simultaneously provide **environmental, social, and economic benefits** and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, **resource-efficient** and systemic interventions.”*

Compared to the IUCN's definition, the EC emphasizes resource and economic cost-effectiveness, aiming to harness the power and sophistication of nature to turn environmental, social, and economic challenges into innovation opportunities. It is also specified what kind of ecosystems are considered in relation to the action that should be taken (cities, landscape, seascape).



## EUROPEAN UNION DEFINITION

Nature-based solutions are now part of the major EU policy priorities, in particular the European Green Deal, biodiversity strategy and climate adaptation strategy, as a way to foster biodiversity and make Europe more climate-resilient. The Commission actively pursues policy dialogues and outreach initiatives at EU and global level to foster engagement, develop a broad knowledge base and stimulate market supply and demand.

The Commission has also suggested 310 potential actions that could fit the criteria for NbS, ranging from reforestation, soil conservation, wetland management, and green roofs ([EU,2015](#)).

Concerning the kind of interventions, some authors ([Cohen-Shacham et al., 2016](#); [Eggermont et al., 2015](#)) categorized NbS along a spectrum from “less engineered” to “more engineered” solutions. Under this system they distinguish three types of NbS:

- Type 1 NbS are solutions that consist of no or minimal intervention in existing ecosystems;
- Type 2 involve enhancing or diversifying existing ecosystems or agricultural lands;
- Type 3 involve designing or managing entirely new ecosystems such as green roofs and wall;





UN Environment Assembly  
(UNEA-5) definition



[UNEP/EA.5/L.9](#)

The fifth UN Environment Assembly (UNEA-5), gathered in February 2021 with the aim of “Strengthening Actions for Nature to Achieve the Sustainable Development Goals” called for urgent actions to protect and restore nature and nature-based solutions to achieve the sustainable development goals in its three complementary dimensions (social, economic and environmental).

Among the pack of 14 resolutions adopted, there is one that contains the first multilaterally agreed definition of nature-based solutions. The final text of the resolution is not yet available.

Following the draft resolution "the United Nations Environment Assembly **recognizes** that:

*«Decides that nature-based solutions are actions to **protect, conserve, restore, sustainably use and manage** natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing **human well-being, ecosystem services, resilience and biodiversity benefits**, and recognizes that nature-based solutions...*



UN Environment Assembly  
(UNEA-5) definition

*Recognizes that nature-based solutions:*

- (a) Respect social and environmental safeguards, in line with the three “Rio conventions” (the Convention on Biological Diversity, the United Nations Convention to Combat Desertification and the United Nations Framework Convention on Climate Change), including such safeguards for **local communities and indigenous peoples**;*
- (a) Can be implemented **in accordance** with local, national and regional circumstances, consistent with the 2030 Agenda for Sustainable Development, and can be managed adaptively;*
- (a) Are among the actions that play an essential role in the overall global effort to achieve the Sustainable Development Goals, including by effectively and efficiently addressing major social, economic and environmental challenges, such as biodiversity loss, climate change, land degradation, **desertification, food security, disaster risks, urban development, water availability, poverty eradication, inequality and unemployment**, as well as social development, sustainable economic development, human health and a **broad range of ecosystem services**; ...»*



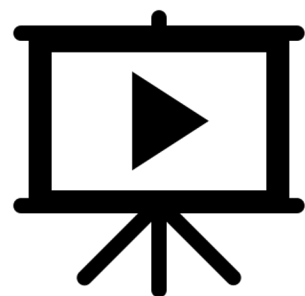
UN Environment Assembly  
(UNEA-5) definition

«Also recognizes that:



*that nature-based solutions may contribute significantly to climate action, **while recognizing the need for analysis of their effects**, including in the long term, and **acknowledging that they do not replace the need for rapid, deep and sustained reductions in greenhouse gas emissions**, but can improve action for adaptation and resilience to and mitigation of climate change and its impact;»*

The incipit of this definition entirely recalls the IUCN working definition of 2015, with the addition of the "ecosystem resilience" among the other benefits (human wellbeing and biodiversity). While the definition from IUCN finishes here, this new definition underlines the role of NbS as one of the main characters addressing social challenges underlining how they are "designed" for the purpose of addressing the major social challenges (listing them) as well as the social, economic and health development.

In the resolution, there are a series of principles and concepts that were largely debated in the last years, especially by the IUCN, and that now finds their recognition. The last point stated the position of NbS within the scale of priorities in the fight against climate change, specifying how important they are and at the same time how these are just a part of the solution.




Nature-based Solutions: from definition to implementation (September 2020)

# Nature-based Solutions: from definition to implementation

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*CEM Ecosystem Restoration Thematic Group webinar series – September 25<sup>th</sup>*



Nature-based Solutions: from definition to  
implementation (September 2020) –  
IUCN CEM Ecosystem Restoration Thematic Group  
Webinar Series

## NBS in the International legal framework

There are different kinds of international-level agreements, where NbS are somehow present, which may or may not be binding. These are conventions, treaties, pacts, charters, codes of conduct, memorandums of understanding and exchanges of notes, for example or may be constituted through international custom.

Binding international treaties provide States the opportunity to agree on joint agendas and commitments that must be achieved within a given period to improve the quality of life for human beings. For this, States need to have in place governance arrangements capable of incorporating mandates emanating from those agreements and turning them into policies, legal and institutional frames to ensure efficient, effective and timely compliance



International Policy Agreements and Conventions which recognize the importance of nature for adaptation, mitigation and disaster risk reduction

- **United Nations Framework Convention on Climate Change (UNFCCC)**
- **The Convention on Biological Diversity**
- **Sendai Framework for Disaster Risk Reduction**
- **Sustainable Development Goals (SDG)**
- **Convention on Biological Diversity (CBD)**
- **The Ramsar Conventions on Wetlands (Ramsar)**
- **United Nations Convention to Combat Desertification (UNCCD)**
- **New Urban Agenda (UN-Habitat)**
- **5th UN Environment Assembly (UNEA 5.2) resolution on NbS for Supporting Sustainable Development**



# The «Earth Summit» - 1992 UNFCCC and CBD

The United Nations Conference on Environment and Development (UNCED), also known as the 'Earth Summit', was held in Rio de Janeiro, Brazil, from 3-14 June 1992. The 'Earth Summit' had many great achievements: the Rio Declaration and its 27 universal principles, the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity;

## Convention on Biological Diversity

Article 1 of the CBD establishes that its objectives, to be pursued in accordance with its relevant provisions, are “...the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.” The “Ecosystem Approach” was adopted as the main framework of action for implementation of the CBD as early as 1995.



**the Ecosystem based approach is a broad strategy that integrates management of land, water and living resources in ways that promote conservation and sustainable use in an equitable way.**

**Later, the EbA concept was developed, and under its latest definition, it is a strategy in the CBD, designed to enhance conservation of entire habitats, and biodiversity therein, as part of an overall adaptation strategy to reduce people's vulnerability to climate change.**

**While NbS, as a concept, has gained most traction in the vision that underpins a variety of issues, of which tackling climate change is only one. Nature-based Solutions place their main emphasis on addressing societal challenges but biodiversity net gain as a core value of NbS creates a convergence with the interests of the biodiversity, conservation community, and EbA approaches through which conservation goals can be met.**

**NbS as a practical tool and the EA/EbA as conservation strategies can follow mutually supportive pathways, while remaining distinct concepts and retaining their individual integrity. The former strives to overcome a wide range of social challenges and the latter guides with the vision of "living in harmony with nature" in the**

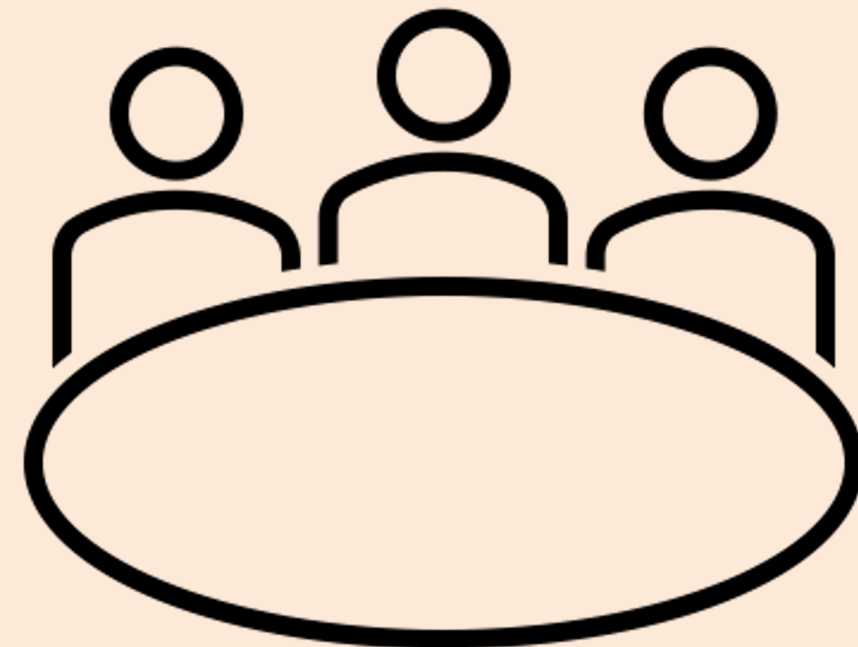




# Thank you for your attention

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Any question? Doubts?



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