



NBS
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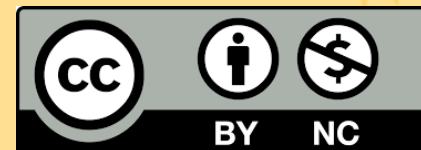


Challenges in Financing and Supporting NBS

Online lecture

Credit: Trinity Business School, Trinity College Dublin

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Learning Outcomes for this Learning Unit

- Examine NBS projects and their finance model to understand their importance in achieving EU and global carbon-neutrality and other sustainability targets.
- Analyse EU Emissions Trading System (ETS) and evaluate Phase IV (2021 - 2030)
- Critically evaluate private green financing and other support schemes, such as budgetary transfers, insurance, taxes, PPP (Public-Private Partnership)
- Consider the challenges in applying NBS should stakeholders express opposing views and vested interests.

Defining Nature-Based Solutions (NBS)

- Energy and resource-efficient solutions

- locally adapted

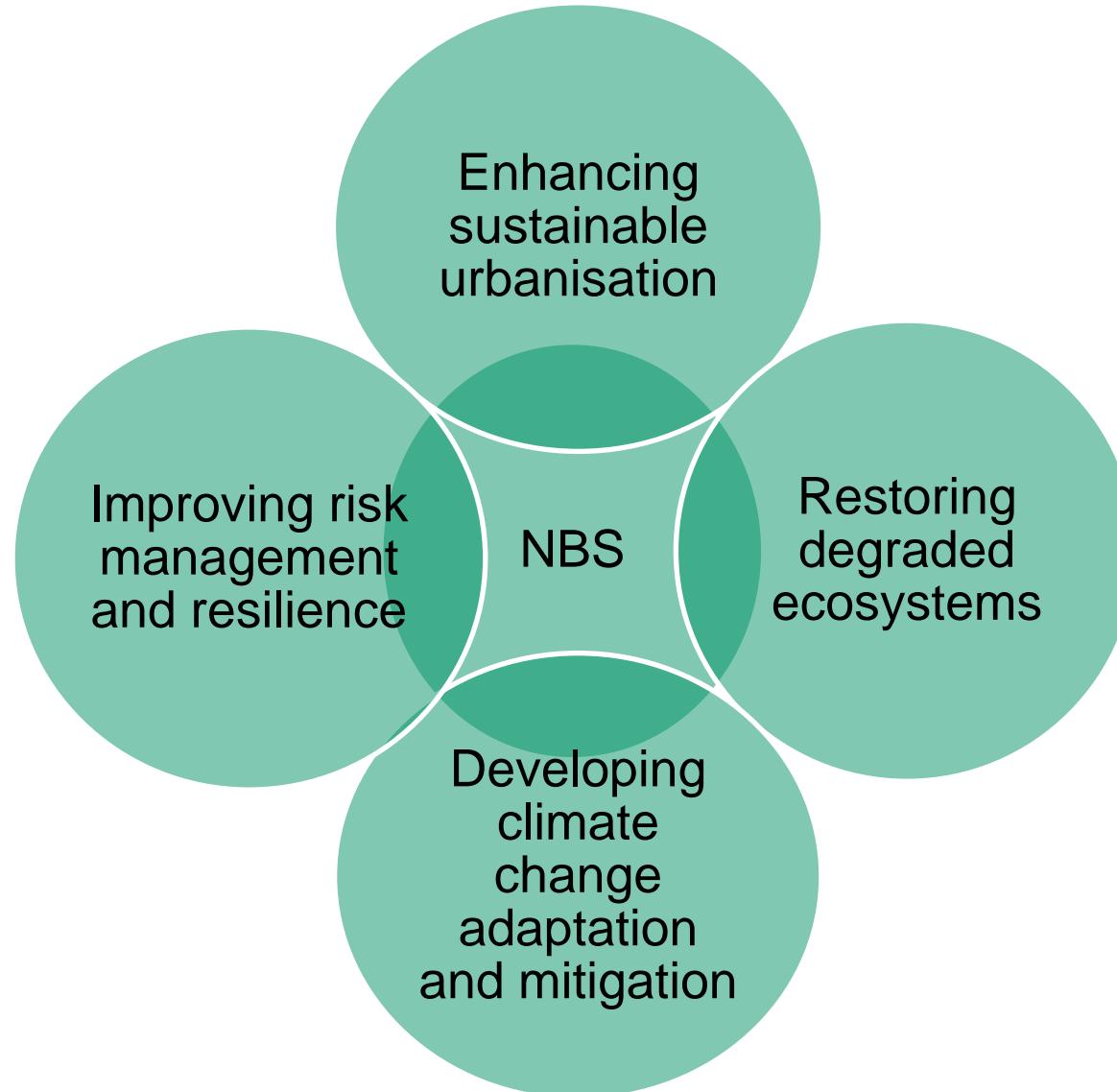
- use the power of nature with commendable sophistication

“simultaneously provide environmental, social and economic benefits by bringing more nature and natural features and processes into cities, landscapes and seascapes”

(European Commission, 2015)

- NBS should be more effective and resource saving than traditional approaches.

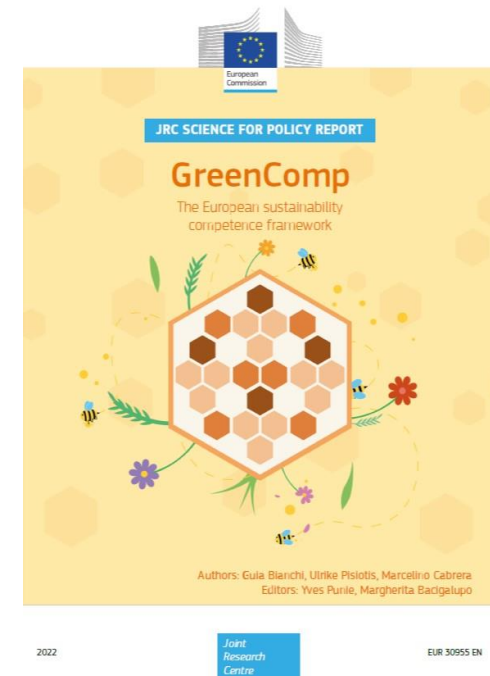
Elements of Nature-Based Solutions (NBS)



Adapted from: (European Commission, 2015)

GreenComp: The European Sustainability Competence Framework

- Promoting sustainability concepts via lifelong education and training exercises
- Four competence areas:
 - 1- Embodying values: a) valuing sustainability, b) supporting fairness, c) promoting nature;
 - 2- Embracing complexity in sustainability: a) systems thinking, b) critical thinking, c) problem framing
 - 3- Envisioning sustainable futures: a) futures literacy, b) adaptability, c) exploratory thinking
 - 4- Acting for sustainability: a) political agency, b) collective action, and c) individual initiatives (Bianchi et al, 2022)



EU Emissions Trading Systems (ETS)

- Established in 2005 as a cap-and-trade system
 - companies are allowed to emit some carbon dioxide,
 - trade in trade allowances (EUA), representing the carbon credits
- Each EUA equals one tone of carbon dioxide
 - Each company needs to purchase if the CO₂ emission is beyond the determined cap level.

Industries in ETS within EEA:

- electricity and heat generation
- production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals, oil refineries, steel works and commercial aviation.

The price carbon permits



- The price of carbon permits was mainly in the range between €5 and €25 pre tonne.
- In February, 2023, the reported price reached €100.
- In 2022, high gas prices and a move to high-carbon coal caused an increase in CO₂ emissions, (Climate Trade, 2022) which in turn impacted the demand for permits.
- In 2023, the delay in permit issuance caused a price spike.

EU's Carbon Border Adjustment Mechanism (CBAM)

- Aims to reduce the carbon emission outside of EU member states, by determining a fair prices of carbon dioxide emitted during the manufacturing process.
- On 1st October, 2023 the CBAM entered the transition phase that will last until 2025.
- Starting 2026, if goods are covered by CBAM, EU importers must register themselves and purchase CBAM certificates.
- CBAM certificate prices determined by average weekly auction prices of EU ETS allowances.
 - importers must inform authorities of the carbon emission levels in imports and then submit the corresponding number of certificates per year (European Commission, 2024)

Nature-Based Solutions - examples

- **Urban areas:** parks, city forests, street trees, green roofs, ponds
- **Agriculture:** soil and water management, crop diversification, agroforestry, paludiculture
- **Water Management:** river restoration, buffers, eco-hydrological forest management
- **Forests and forestry:** restoration, protection and connection, sustainability, forest and tree inclusion in the landscape
- **Coastal areas:** restoration and rehabilitation, barrier islands, beach development
- **Protecting areas:** reforestation, timber use for water retention, microbial use in growing vegetation. (European Commission 2015)

Financing Solutions - NBS

■ Economic incentives:

- reduction of concrete areas = lower utility fees.
- credit for urban development and subsidies/payments are positive factors.

■ Economic disincentives:

- Conversion fees for highly valuable land should discourage the use for other purposes.
- 150 biodiversity-linked taxes and one of the effective examples is a pesticide tax.

■ Insurance:

- Insurance companies rewarding risk-reducing behaviour (e.g. reductions in premiums and deductibles)
 - flood resilience evaluation rewarded with lower premium
- Recognising the value of ecosystems.
 - Mesoamerican reef scheme, (60 km of coastal area) protected by purchasing parametric insurance triggered by damaging wind speeds and by collecting taxes from tourism. (European Environment Agency, 2021)

Financing Solutions

■ Green loans and bonds:

- finance green projects, i.e. those that are environmentally beneficial. (European Environment Agency, 2021)

■ Natural Capital Financing Facility:

- established by the European Investment Bank and European Commission in 2016
- supports biodiversity and foster ecosystem adaptation (anticipating and mitigating the damage of adverse changes, while also taking advantage of opportunities) to the climate change.
- Loan size of up to €15 million, with a grace period of up to three years.

■ Financing examples:

- restoration of coastal seagrass
- regeneration of disused brownfield sites
- restoration of grassland habitat
- river restoration for pro-biodiversity businesses. (NCFF, 2016)

Challenges

- Citizen can hinder the implementation of projects via
 - Outright contestations
 - Inaction
 - Lack of civic engagement
 - Lack of consideration for legal provisions
- Some outcomes are positive, but unintended
- When seeking feedback, citizen are less interested in green agenda and more in increased convenience
- self-selection of citizens with negative attitudes during consultations (Wamsler et al., 2020)

Calculating NBS and Green Infrastructure Projects

Example to consider financial value of NBS:

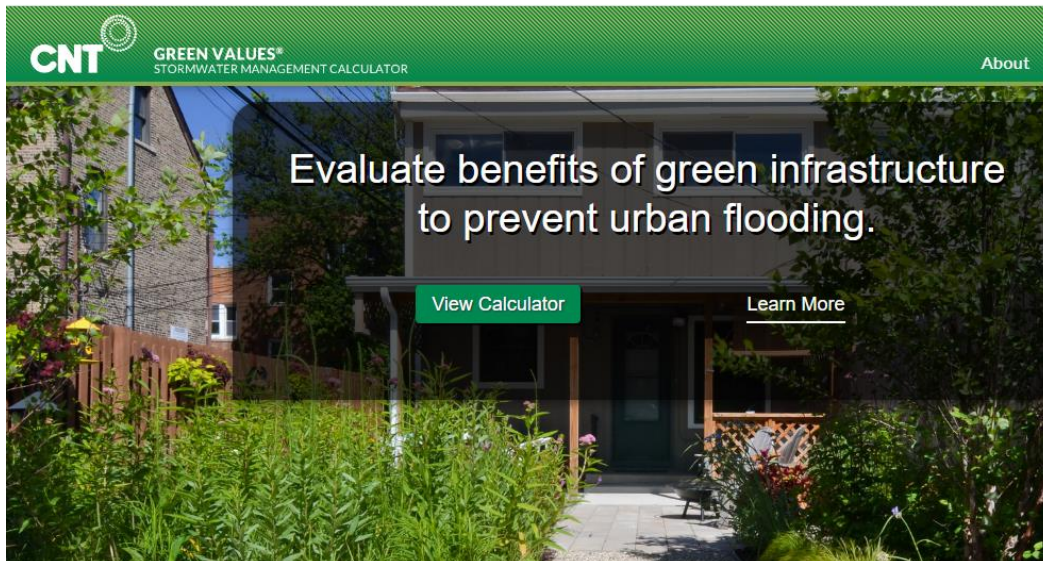
- Stormwater Management Calculator [link](#)
 - Evaluate benefits of green infrastructure to prevent urban flooding.
- https://gib-foundation.org/wp-content/uploads/2019/12/ThinkNature_Handbook_20190913.pdf

Developing a NBS Business Case

Example to consider financial value of NBS:

- Stormwater Management Calculator [link](#)
- Evaluate benefits of green infrastructure to prevent urban flooding.

[Somarakis et al 2019 - Think Nature NBS Handbook](#)



Challenges – how can this be mitigated?

- Citizens do not prefer the planting of more street trees, because of bird droppings.
- Sea wall may be preferred by owners of houses closest to the sea. However, for others the wall may obstruct the view of the sea.
- Green sea wall sometimes cannot be erected because the citizens were building on municipal land and then even sold properties with the municipal land being misappropriated.
- Promoting environmental agendas against taller buildings could be strategically more focused on getting extra time to increase resistance to the project. However, taller buildings save space, as opposed to sprawling one-family houses, and it is environmentally more sustainable.
- Lack of greenery is a general impression among citizens, but when it comes to implementation, the specifics are not accepted by citizens.



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Thank you!

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