Nature-based Solutions

Defining and Understanding NbS
Some facts...

$44$ trillion of economic value generation, half of World's GDP is moderately or highly dependent on nature.

According to IPBES around 1 million species are under the threat of extinction.

The UN estimated that 40% of land is now degraded. Freshwater is becoming more scarce, 60% of rivers in Europe defined unhealthy.
Defining Nature-based Solutions (NbS)

According to the International Union for the Conservation of Nature (IUCN) NbS are:

- Actions to protect, sustainably manage, and restore natural and modified ecosystems
- Address societal challenges effectively and adaptively
- Actions that benefiting people and nature simultaneously
Frequent expressions used when talking of NbS:

- **Biodiversity and Ecosystems**
  - e.g., forests, wetlands

- **Restore and Manage**
  - e.g., mangrove restoration, reforestation

- **Mitigation, Adaptation and Resilience**
  - e.g., carbon capture, flood recovery

- **Societal Issues**
  - e.g., public health benefits
Societal Issues that NbS could improve

- Climate change mitigation & adaptation
- Disaster Risk Reduction
- Public Health
- Water and Food Security

NbS linked to forest, wetlands and agriculture could sequestrate 1/3 of GHG emissions.

Wetlands, forests and coastal systems act as buffers that reduce exposure to natural hazards.

NbS can improve water and food quality, reduce zoonotic diseases, and bring physical and mental health benefits.
What about implementing NbS in Urban settings?

Cities have 57% of global population in urban areas

Cities consume 75% of natural resources

Some types of Urban NbS:
Green roofs, parks and urban forests, blue infrastructure

And some actual barriers for the implementation of Urban NbS:
functionality, planning, awareness
Keep following our #NatureBasedSolutions Campaign to see in depth their benefits for the environment, health, and the role of youth in implementing them!

#StayTuned
Sources:

WEF

UN, IPBES

The Guardian
https://www.theguardian.com/environment/2022/apr/27/united-nations-40-per-cent-planet-land-degraded

WWF
https://wwf.panda.org/discover/our_focus/freshwater_practice/freshwater_inititiaves/living_european_rivers_initiative/
https://wwf.panda.org/discover/our_focus/climate_and_energy_practice/what_we_do/nature_based_solutions_for_climate/

IUCN

European Commission

Bona, S., et Al. (2023)
https://doi.org/10.3390/app13010168

Challenges to realizing the potential of nature-based solutions. Current Opinion in Environmental Sustainability. 45, 49–55.
https://doi.org/10.1016/j.cosust.2020.09.001
Nature-based Solutions
What are the benefits for environment & health?
A major benefit of NbS is the ability of ecosystems to sequester carbon.

NbS through restoration, conservation and improved land-management could save 10 gigatons of carbon per year.
Climate change adaptation

Nature-based solutions also play a role in adaptation to the environmental changes and natural disasters caused by climate change. For example:

Mangroves prevent a predicted 15 million people from exposure to flooding per year and save $65 billion in damage.
Biodiversity

Restoring and conserving ecosystems for NbS also enables biodiversity to increase.

IUCN Global Standard for Nature-based Solutions (2020)

“Criterion 3: NbS result in a net gain to biodiversity and ecosystem integrity”

88% of NbS which had a positive impact for climate change adaptation also had a positive impact for ecosystem health and increased species richness by 67% on average.
NbS for public health

1. Clean and safe drinking water
   NbS increases water availability and quality, impacting water security

2. Reduced urban heat stress
   Trees in urban areas lead to cooler environments

3. Reduced incidence of zoonotic diseases (COVID-19)
   Zoonotic diseases emerge from degraded ecosystems, so restoration could prevent spread to humans

4. Reduced cardiovascular disease
   NbS in urban areas has also been implicated in reduced mortality of the population from cardiovascular disease
Mental health

Improved wellbeing is associated with access to public green spaces and urban trees.

Time in nature has been demonstrated to be an effective treatment to reduce symptoms of anxiety and depression.

In an urban setting, NbS has also been associated with a moderate reduction in the incidence of mental disorders.
Keep following our #NatureBasedSolutions Campaign to see in depth their benefits for the environment, health, and the role of youth in implementing them!

#StayTuned
Sources:


Nature-based Solutions

Youth and NbS
Youth and Nature-based Solutions (NbS)

As the world's next leaders, youth should...

- Be aware of environmental issues and the climate emergency
- Have the right to be involved in environmental solutions
- Foster a positive impact on the environment and communities
Youth Network Initiatives

The Global Youth Biodiversity Network, YOUNGO, and Youth4Nature

Inclusive Global Youth Position Statement on Nature-based Solutions

“Youth are already taking action for biodiversity, nature and climate on the ground in their communities and should be meaningfully supported to continue and scale up this work, rather than tokenized (or “youthwashed”) for top-down, exclusive activities and engagements.”

www.nbsyouthposition.org/statement
Engaging the Next Generation

**Ways to get youth involved in NbS projects**

- Include youth, particularly women, in decision-making processes on NbS
- Mandatory groups of local young people to participate in the development of the projects

**Policymakers integrating the youth role into NbS strategies/actions**
Case study: INUKA Project

This project launched on 20 March 2023 in Nairobi for 15 months. It seeks to take advantage of experiential learning to deliver training on NbS, best practices, youth leadership, storytelling and scale-up solutions across five key landscapes in Kenya and other African countries.
Case study: INUKA

Topics of the project:
- Carbon offsetting; flooding mitigation;
- Irrigation of fields; biodiversity protection; environmental education...

INUKA’s main goals:
- Biodiversity and NbS best practice
- Sustainable Livelihoods
- Community building and youth Leadership

INUKA’s meaning:
"INUKA" is a Swahili word for “rise up”

Get to know more about the project:
www.youth4nature.org/blog/inuka-is-launching
Keep following our #NatureBasedSolutions Campaign to see their benefits for the environment, health, and the role of youth in implementing them!

#StayTuned
Sources:

Statement
https://static1.squarespace.com/static/60d345a74ed9f630745b8646/t/61868053f73d0949acb7dd1e/1636204632840/Nature-Based+Solutions-Position+2021+Nov+C.pdf

Inukaproject
https://www.youth4nature.org/blog/inuka-is-launching

Nature based solutions online class : unit 4 inclusion of youth
https://sdgacademylibrary.mediaspace.kaltura.com/media/Inclusive+actionA+Importance+of+youth%2C+communitieands+and+indigenous+people+for+Nature-based+Solutions/1_8qes2ha8/202650223

The Next leap on climate : creating and enabling environment for youth led-action
Nature-based Solutions
Advocacy & partnerships
In response to a continuously changing world, it is essential to raise awareness on issues and to influence change.

Advocating on NbS can have a huge impact on EU policies regarding climate change mitigation and adaptation. Raising awareness on NbS will increase knowledge and sensitivity of citizens towards day to day issues, like air pollution or environmental hazards.
RAF (Regenerative Agriculture Foundation) is an intermediary founder created in 2016 which collaborates with foundations, investors, nonprofits, community leaders, and land stewards to advance regenerative agriculture, develop and promote climate solutions, protect freshwater and oceans, support thriving rural communities, and sustain diverse human and ecological life.

Main objectives:
- Advance regenerative agriculture
- Develop and promote climate solutions
- Protect freshwater and oceans
- Support thriving rural communities, and sustain diverse human and ecological life
Over half the world’s population now live in cities, and they generate over 70% of our climate footprint. Through better transport, green buildings, harnessing the power of nature, wasting less and loving more, cities can lead the way to a climate-friendly future.
Lund has been named the best climate city in Sweden and the best one in the world by the World Wide Fund for Nature (WWF).

Among all the contenders, Lund has made the most significant contribution to the competition, according to the panel, and is distinguished by ambitious and explicit climate goals, political leadership, and a broad and transparent work program.
What about the other winner?

Lund pioneered the invention of an ingenious ‘electric road’ so that vehicles such as buses and trucks can continuously recharge while in motion.

There’s more! By restricting parking and offering alternatives, the city of Lund hopes more residents will choose car-free living, which the municipality estimates can save 13 kilotons of CO2 equivalent per year.

A big switch from natural gas to biogas and residual heat – and biomass-fueled district heating is expected to save 77 kilo tons of CO2 equivalent annually.

Some initiatives and their amazing results
The Bogota' Municipality was elected alongside Lund.

The Bogota' Municipality launched the "Bogotá Reverdece" Land Use Plan, which prioritises bicycles, pedestrians, proximity, and clean mass transportation with five subway lines, two regional trains, seven cable car lines, and a zero-emission bus system to reduce the carbon footprint and contribute to meeting mitigation goals.

Additionally, it protects and expands the Main Ecological Structure by 30%, raised the level of protection of wetlands, and increases their area by 20%.
Keep following our #NatureBasedSolutions Campaign to see in depth their benefits for the environment, health, and the role of youth in implementing them!

#StayTuned
Sources:

https://regenerativeagriculturefoundation.org
https://welovecities.org
Nature-based Solutions

NbS controversies
Understanding greenwashing in NbS

Many of the biggest emitters invest in NbS...

...but not in rapid decarbonization

- Dismissing the urgent need for systemic change through decarbonization
- Distracting attention from harmful local impacts of fossil fuel extraction
94% of rainforest offset credits don't represent genuine emissions reductions.

Verra

World’s leading carbon standard for the voluntary offsets market

The investigation

Companies used credits to make false claims of reducing emissions.

The method

(Source: The Guardian)
Shell plans significant investments in 'nature-based offsets' and renewable energy. The multinational oil and gas company has been accused of greenwashing. Carbon offsetting does not contribute to meeting short-term climate targets (SBTi*). Shell is responsible for emissions that far outweigh those it seeks to offset. The budget for exploring new fossil fuels is much greater than for renewables and NbS projects.
Implementation issues with NbS

- NbS are sometimes implemented through top-down governance.
- Many NbS projects don't propose empowering local communities to face climate impacts.
- Plantations and protected areas are sometimes established within Indigenous Peoples' territories without their consent.
- Private companies may use NbS and nature to make a profit.
Threats to biodiversity

Misguided measures to offset carbon:
- Afforestation
- Non-native species
- Degradation of native vegetation
- Monocultures
- Plantations for short-lived products
- Plantations that store less carbon
Key aspects when considering NbS

- They are not an alternative to drastic emissions cuts (UNEA resolution)
- Protecting intact ecosystems has the highest potential
- Local social outcomes are key to ensure long-lasting NbS
Key aspects for achieving successful NbS

**Cooperation within and between governments and among stakeholders**

**Secure and sustainable flows of finance to the communities and projects that need it most**

**Boost the visibility of projects from underrepresented regions**
Keep following our #NatureBasedSolutions Campaign to see in depth their benefits for the environment, health, and the role of youth when implementing them!

#StayTuned
Sources:


“Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows” The Guardian (January 18, 2023).

“Greenwashing Files: Shell” ClientEarth (www.clientearth.org/projects/the-greenwashing-files/shell/).


Nature-based Solutions
International NbS case studies
By leading the way in restoring wetland ecosystems, Estonia is transforming its bogs from CO2 sources to sinks.

This can provide co-benefits such as:

- Greater biodiversity
- Purified water
- Increased tourism

Degraded peatlands are sources of greenhouse gases (including methane and CO2).
France: Agroforestry

Agriculture is both a cause and a victim of climate change (higher temperature and droughts) so appropriate adaptation measures are crucial.

Agroforestry is the combination of trees and crops cultivation, a more resilient system (monocultures are deemed to be more vulnerable).

Main benefits:
- A 40% increase in productivity compared to traditional cultivation (INRAE)
- Trees provide shelter for crops
- Increased biodiversity and enhanced pollination
- Farmers can diversify their products and increase their income

The scheme adopted in Montpellier (Southern France), implemented for 20 years, proposes a combination of walnut trees and wheat cultivation.

1/2 Million Hectares of agroforestry expected in France
In Norway, EVs (Electric Vehicles) reached over a 90% share of new car sales, including plug-in hybrids in addition to fully electric vehicles.

Oslo, Norway, has an ambitious goal of a reduction of greenhouse gas emissions (GHGs) of over 95% by 2030. How? Using the most renewable energy of any country in Europe, due, mainly, to a vast supply of hydroelectricity.
Design with biodiversity in mind:
When designing urban parks and green spaces, Singapore prioritises the conservation of biodiversity. The country has a national biodiversity strategy that guides the design and management of green spaces, with a focus on preserving and enhancing natural habitats for local flora and fauna.

Key Measures
- Using native plants
- Emphasizing accessibility and inclusivity
- Promoting active recreation and mental health
- Fostering community involvement
USA: Permeable pavement

Permeable pavements are natural drainage systems that have great benefits:

- Avoid flooding and reduce water consumption
- Reduce CO2 emissions
- Reduce temperature, avoid heatwaves
- Reintroduce nature in the city
- Preserve biodiversity
- Provide mental health benefits
Switzerland: Green Roof/Wall Systems

**Systems** intentionally covered with vegetation on a growing medium
Also called "contained" green spaces

Some benefits are:
- Energy Efficiency and Water Management
- Improved Biodiversity
- Improved Air Quality
- Carbon Capture

Since 2010, green roofs are compulsory on all flat-roofs

5.71 m²/capita (2019) = largest area of green roofs per capita globally

Basel’s Green Roofs
Thank you for following our #NatureBasedSolutions Campaign to see in-depth their benefits for the environment, health, and the role of youth in implementing them!

#StayTuned
Sources:


Green Walls — Green Roofs for Healthy Cities. https://greenroofs.org/about-green-walls


https://www.greencitytimes.com/climate-goals-is-oslo-leading-the-way/
https://www.mi-forums.com/green-oslo
https://www.greenvisits.no/product/the-norwegian-electric-vehicle-success/


https://www.epa.gov/soakuptherain/soak-rain-permeable-pavement