#InvestEUresearch

'Let Nature be the Solution'

The EU's approach to NBS and its landscape of projects

II International Seminar on Nature-based Solutions

Brasília

9-10 July 2018

Tiago Freitas

DG Research and Innovation

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Agenda

1. The NBS approach and the NBS roadmap
2. The evidence base: inspiration from FP7 projects and EU city case studies
3. NBS in Horizon 2020: current landscape of projects
4. The role of business in NBS
5. Upcoming opportunities under Horizon 2020
6. The new Horizon Europe framework program

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Nature-based solutions are living solutions, inspired and supported by nature, which provide **environmental, social and economic benefits** and help build **resilience.** Such solutions bring more nature into cities, landscapes and seascapes, through local, resource-efficient and **systemic** interventions.

Examples:

- *Green roofs and vertical walls*
- *Natural water retention measures*
- *Sustainable urban drainage systems*
- *Green corridors*
- *Salt marshes, mangroves and dunes*
- *Floodplain forests*

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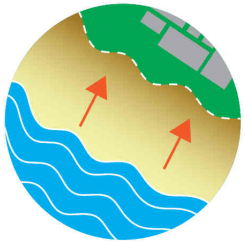
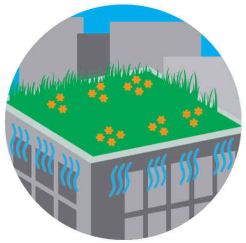
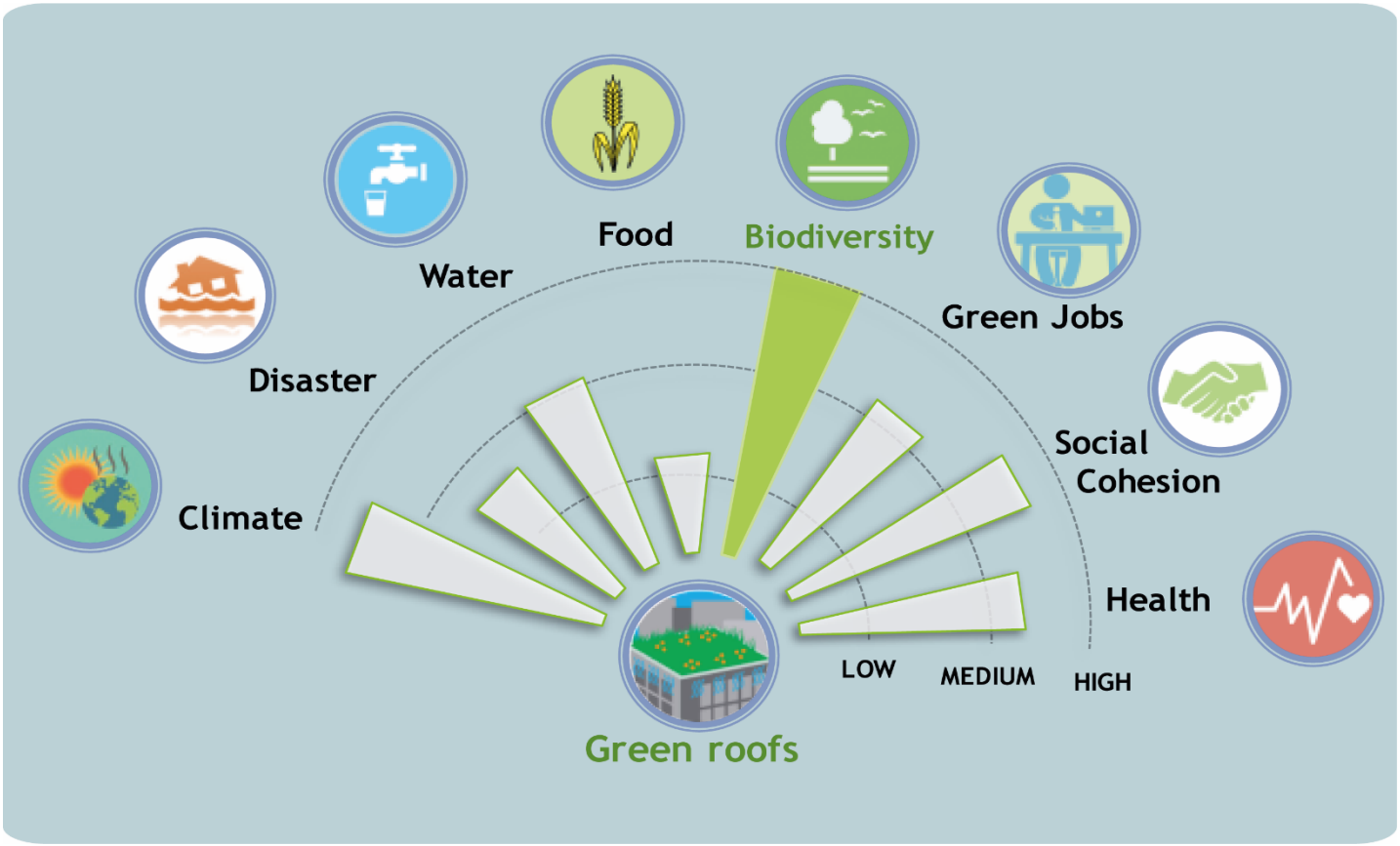



Defining NBS

- Solutions to societal challenges based on:
  - The use of living organisms: NBS are based on the services ecosystems provide;
  - Systemic, multipurpose and flexible approaches adapted to local situations;
  - Cost-effectiveness, including both direct and indirect benefits;
  - Simultaneous economic, social and environmental benefits;
  - A solutions-oriented and targeted approach.

- The EU definition is much more precise than the broader concepts 'sustainable management' or 'sustainable solutions' under which it belongs.

NBS provide multiple benefits and help tackle different societal challenges at the same time



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Sendai Framework for Disaster Risk Reduction 2015-2030

CBD

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD

HABITAT III
QUITO - OCTOBER 2016

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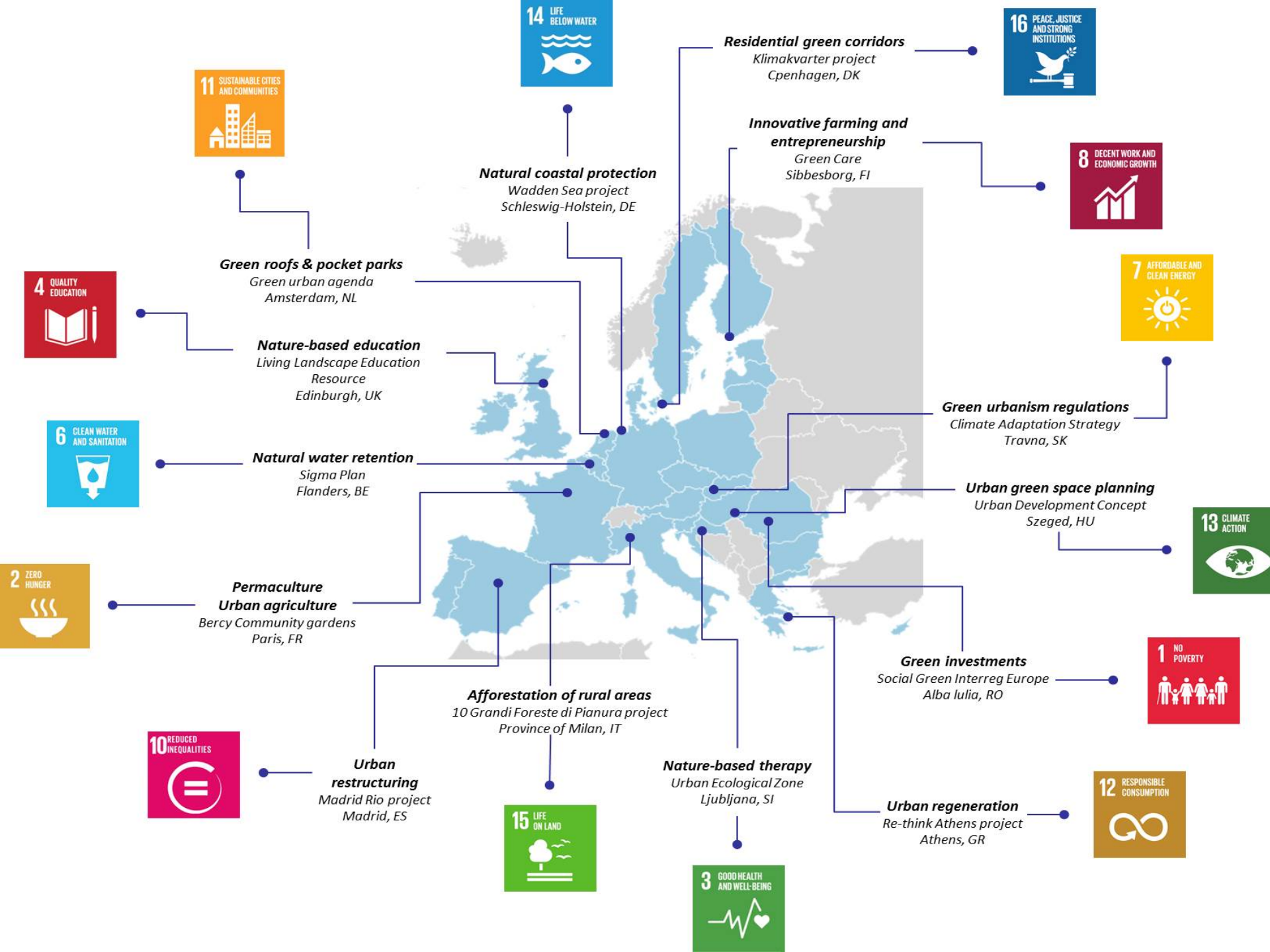
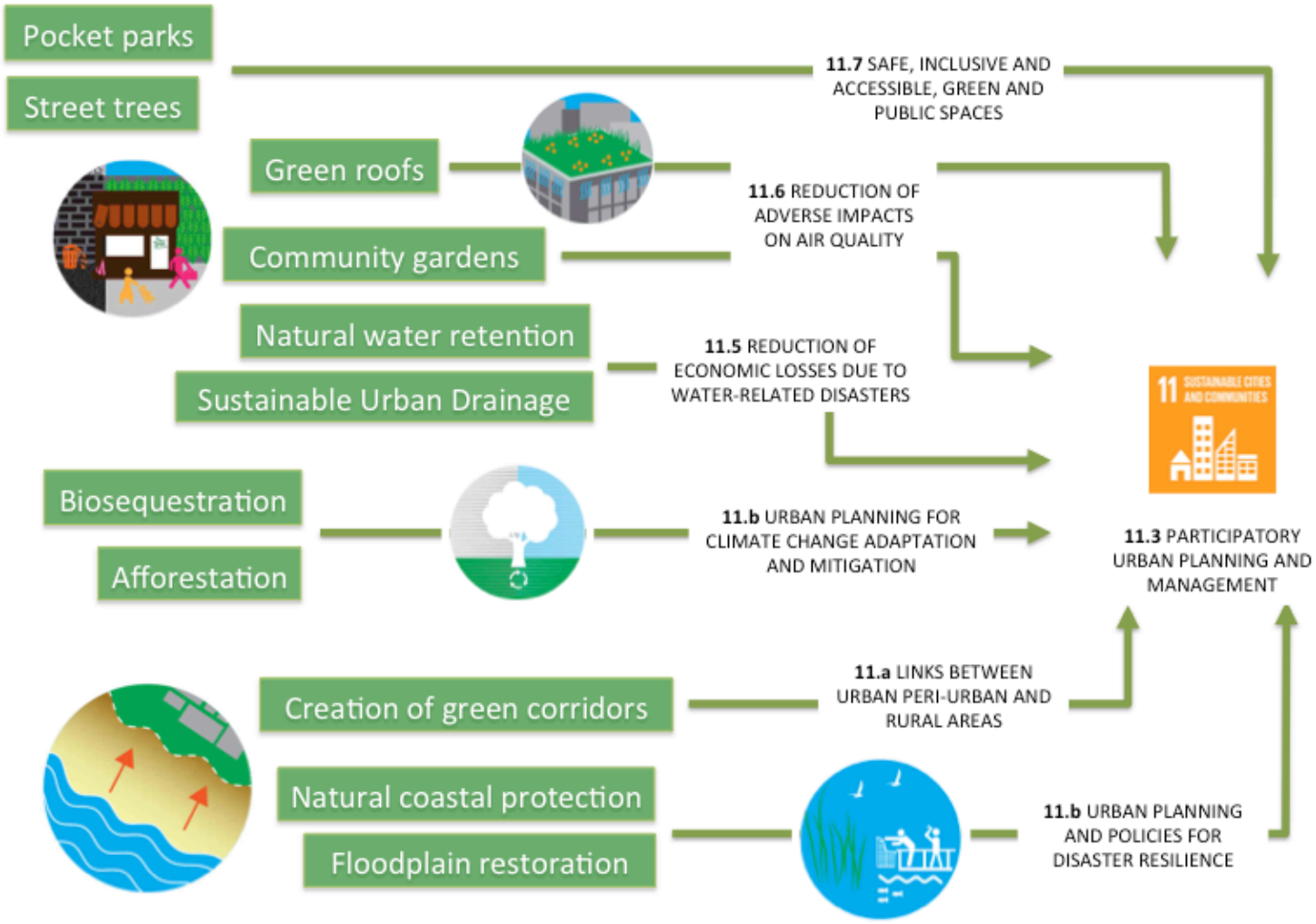

14 LIFE BELOW WATER
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
11 SUSTAINABLE CITIES AND COMMUNITIES
8 DECENT WORK AND ECONOMIC GROWTH
4 QUALITY EDUCATION
7 AFFORDABLE AND CLEAN ENERGY
6 CLEAN WATER AND SANITATION
13 CLIMATE ACTION
2 ZERO HUNGER
1 NO POVERTY
10 REDUCED INEQUALITIES
15 LIFE ON LAND
12 RESPONSIBLE CONSUMPTION
3 GOOD HEALTH AND WELL-BEING
Residential green corridors
Klimakvarter project
Cpenhagen, DK
Innovative farming and entrepreneurship
Green Care
Sibbesborg, FI
Natural coastal protection
Wadden Sea project
Schleswig-Holstein, DE
Green roofs & pocket parks
Green urban agenda
Amsterdam, NL
Nature-based education
Living Landscape Education Resource
Edinburgh, UK
Green urbanism regulations
Climate Adaptation Strategy
Travna, SK
Natural water retention
Sigma Plan
Flanders, BE
Urban green space planning
Urban Development Concept
Szeged, HU
Permaculture
Urban agriculture
Bercy Community gardens
Paris, FR
Green investments
Social Green Interreg Europe
Alba Iulia, RO
Afforestation of rural areas
10 Grandi Foreste di Pianura project
Province of Milan, IT
Urban restructuring
Madrid Rio project
Madrid, ES
Nature-based therapy
Urban Ecological Zone
Ljubljana, SI
Urban regeneration
Re-think Athens project
Athens, GR



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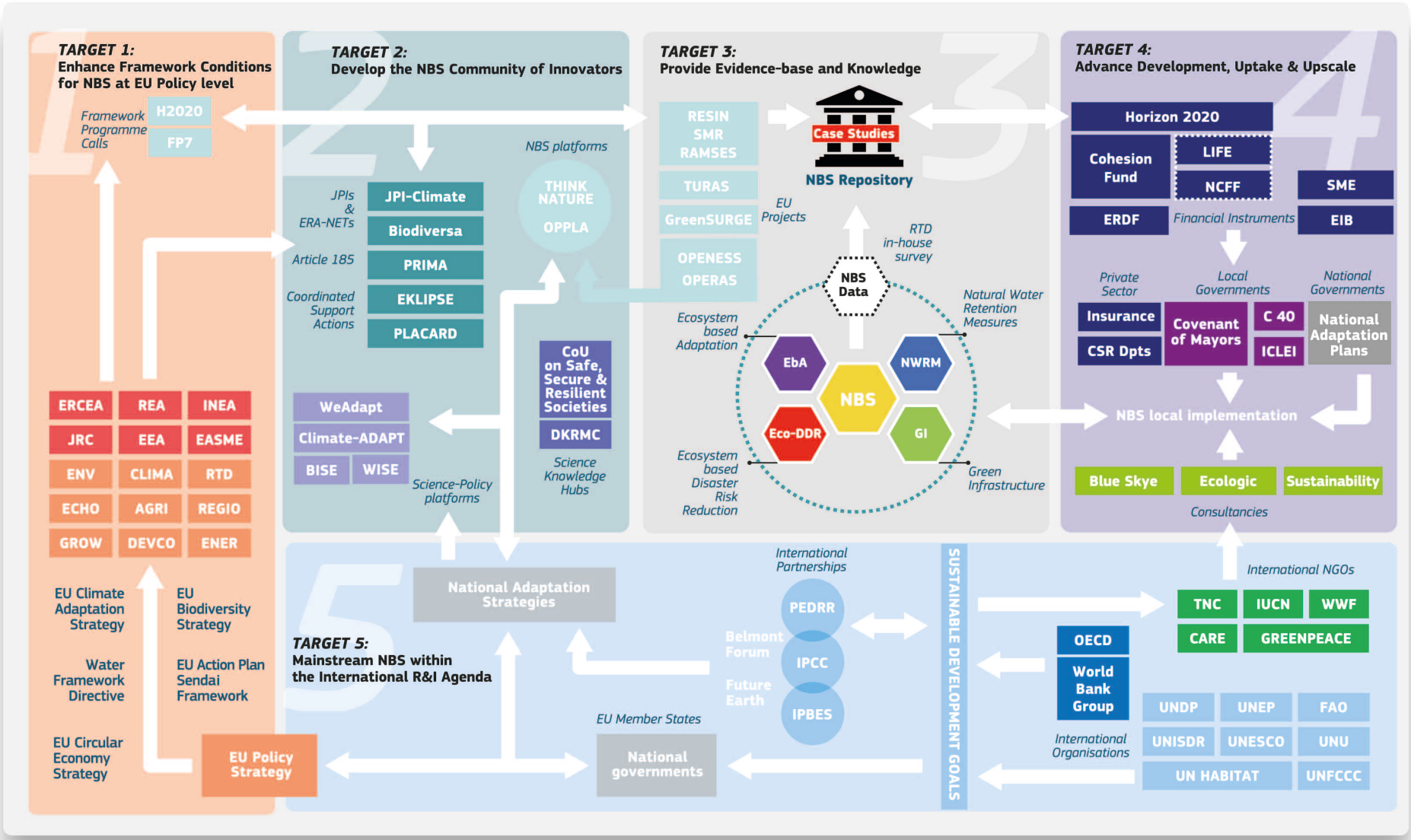
The NBS roadmap



2 Gathering the evidence base

- FP7 projects (2007-2014): not explicit about NBS but knowledge generated on
  - Ecosystem-based approaches
  - Various dimensions of urban sustainability
- NBS city case studies: best practices in different EU contexts
- Horizon 2020 (2014-2020): demonstration phase
  - Projects will provide evidence of NBS cost-effectiveness

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NBS case studies

- Many European cities have implemented **NBS** – even if most of the times not explicitly - to tackle a series of **societal challenges**
  - Climate adaptation and mitigation, disaster risk reduction, urban wellbeing, etc

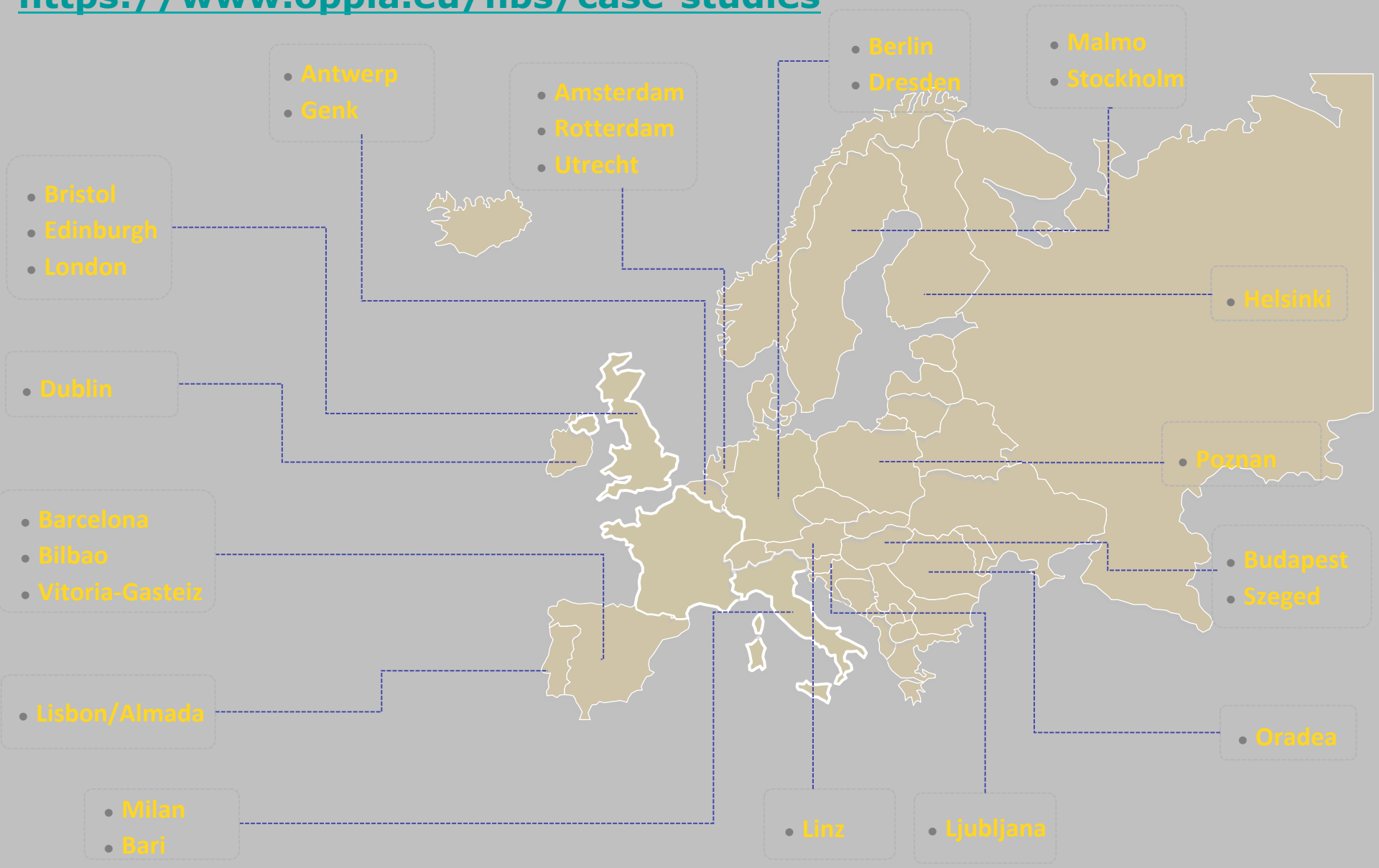
- DG RTD aimed to identify these actions, in light of the recent adoption of the NBS concept, and to highlight **best practices**

- These include NBS as such but also other actions considered as **enabling the implementation** of NBS

- The case studies provide examples of the multiple benefits delivered by different kinds of NBS implemented in EU cities.

NBS case studies

https://www.oppla.eu/nbs/case-studies



Amsterdam - NBS for greening the city and increasing resilience

Bari - NBS for greening the urban space

Berlin - NBS for urban green connectivity and biodiversit

Bilbao - NBS for dealing with extreme temperature and rainfall events

Bristol - NBS for ensuring a sustainable future

Budapest - NBS for climate resilience and pollution control

Dresden - NBS for sustainable urban transition

Dublin - NBS for a more sustainable city by 2030

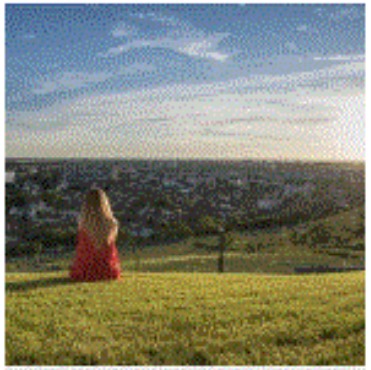
Edinburgh - NBS enhancing health, wealth and sustainability

Genk - NBS bridging green and industrial heritage

Linz - NBS as a motor for urban growth

London - NBS for a leading sustainable city

Milan - NBS for urban regeneration



Oradea - Improving quality of life with NBS

Poznań - NBS for a friendly, mobile city

Rotterdam - NBS for building a waterproof city

NBS case studies

Prinzessinnengarten, Berlin

Recreation area Solarcity, Linz

Augustenborg, Malmo

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NBS case studies

Bosco Verticale, Milan

The Ciutadella-Collserola green corridor, Barcelona

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NBS case studies

Tidal Park Esch, Rotterdam

The Ljubljanica river restoration, Ljubljana

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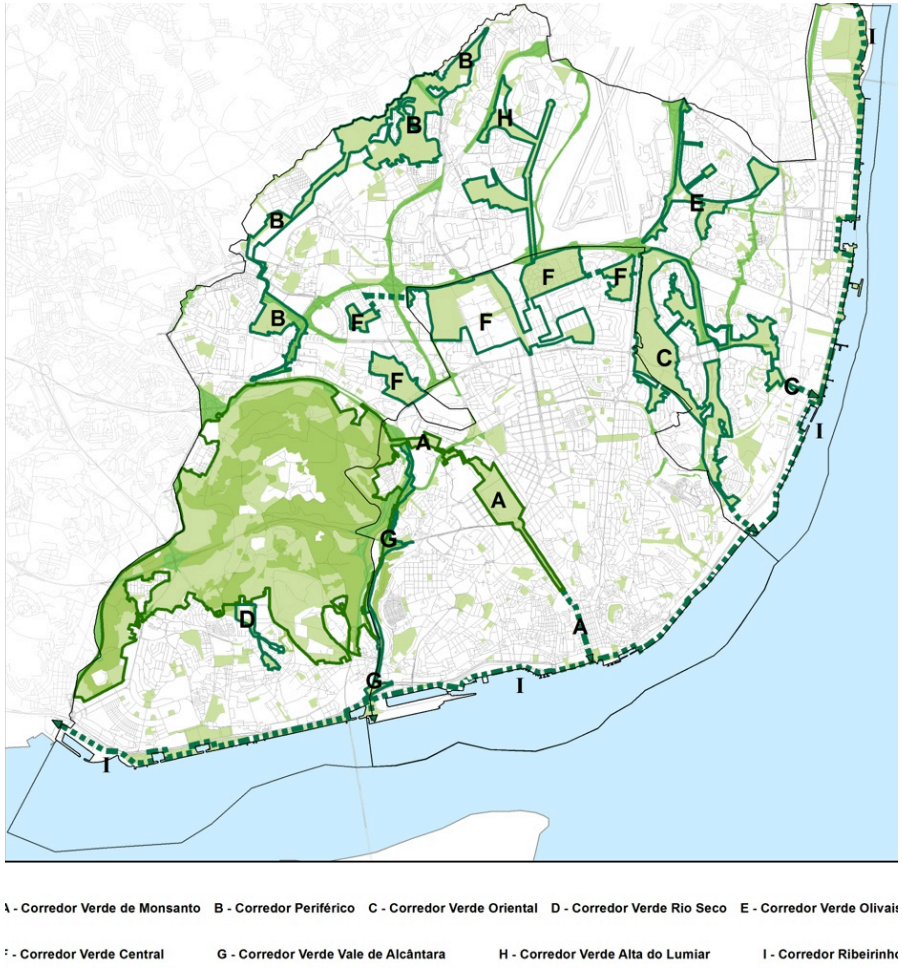
NBS case studies

Lisbon:

- Multifunctional green corridors composed of different NBS – integrated so as to create synergies in addressing several challenges;
- Low cost, low maintenance;
- Use of local biodiversity (biodiverse and climate proof meadows)
- Urban farming, urban regeneration and social inclusion



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NBS case studies

Vale de Alcantara green corridor, Lisbon

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NBS case studies

City of LISBON

Challenges:

- Urban regeneration
- Urban heat island effect
- Air quality
- Flood control

Nature-Based Solutions:

- Urban green corridors - increase ecosystem connectivity and contribute to air pollution removal and flood control
- Street trees and green spaces - enhance mobility for pedestrians and cyclists, reduce urban heat island effect
- Garden allotments - horticultural parks for food provision and urban regeneration

Evidence of NBS effectiveness:

Lisbon's 42,247 street trees provide services valued at about € 7.5 million annually, for € 1.7 million spent managing the green spaces.

For every € 1 invested in tree management, residents receive € 4.48 in energy saving, cleaner air, increased property value and CO_2 sequestration.

(Soares et al. 2011)

3 NBS under Horizon 2020: the landscape of projects

- Promote "city re-naturing" as a **systemic and cross-sectorial** approach to enhance **urban sustainability and resilience;**
- Develop a large **portfolio** of systemic, replicable, scalable and integrated **nature-based solutions** which are **tested in real world conditions**;
- Provide robust **evidence** about their **cost-effectiveness** accounting for the **totality of benefits**;
- **Mobilise** and **leverage new investments** to open up new **business opportunities**;
- Contribute to **creation of a global market** for such solutions/ interventions;

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NBS under Horizon 2020: the landscape of projects

EKLIPSE	CSA	SC5-10c-2015	An EU support mechanism for evidence-based policy on biodiversity & ecosystems services
ThinkNature	CSA	SC5-10-2016	Multi-stakeholder dialogue platform to promote innovation with Nature
INSPIRATION	CSA	SC5-10b-2014	Structuring research on soil, land-use and land management in Europe
NAIAD	RIA	SC5-09-2016	Operationalising insurance value of ecosystems
Nature4Cities	RIA	SCC-03-2016	New governance, business, financing models and economic impact assessment tools for sustainable cities with NBS
Naturvation		SCC-03-2016	
CONNECTING	IA	SCC-02a-2016	Demonstrating innovative NBS in cities/ water and climate resilience
GROW GREEN		SCC-02a-2016	
UNALAB		SCC-02a-2016	
Urban GreenUP		SCC-02a-2016	
BiodivERsA3	ERA-NET	SC5-09-2014	Consolidating the European Research Area on biodiversity and ecosystem services

New NBS projects starting in 2018

- **SCC-02-2017: Demonstrating innovative nature-based solutions in cities (urban regeneration)**
  - To provide a robust, EU-wide evidence base and develop a European reference framework on nature-based solutions: projects **ProGIreg**, **Clever Cities**, **UrbiNat**, **EdiCitnet**

- **SC5-08–2017: Large-scale demonstrators on nature-based solutions for hydro-meteorological risk reduction**
  - To provide evidence that NBS are flexible, multi-beneficial alternatives to traditional engineering to cope with extreme events: projects: **PHUSICOS**, **RECONECT**, **OPERANDUM**

Cities coverage in H2020-SCC-02-2016-2017 1/2

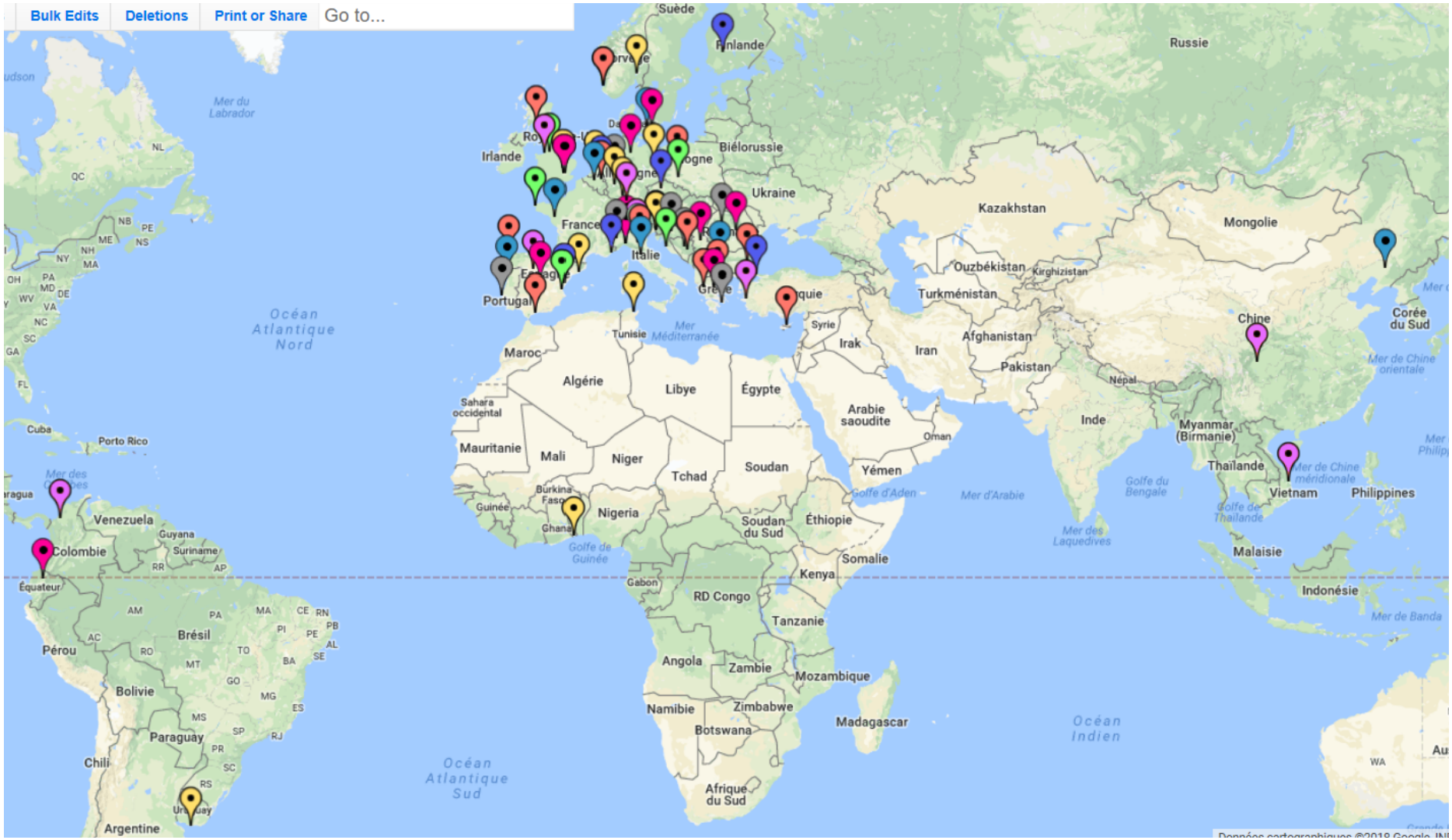
2016 projects – Climate resilience and water management

- CONNECTING Nature
- GROW GREEN
- UNALAB
- URBAN GreenUP

2017 projects – Urban regenaration

- ProGIreg
- Clever Cities
- UrbiNat
- EdiCitnet

Cities coverage in H2020-SCC-02-2016-2017 2/2



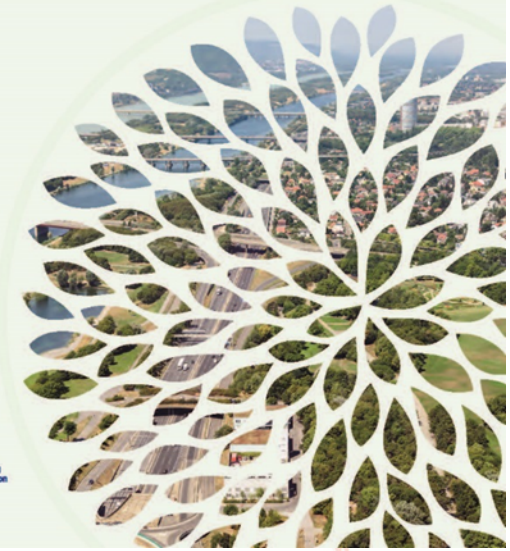
https://ec.europa.eu/easme/en/data-hub

EKLIPSE

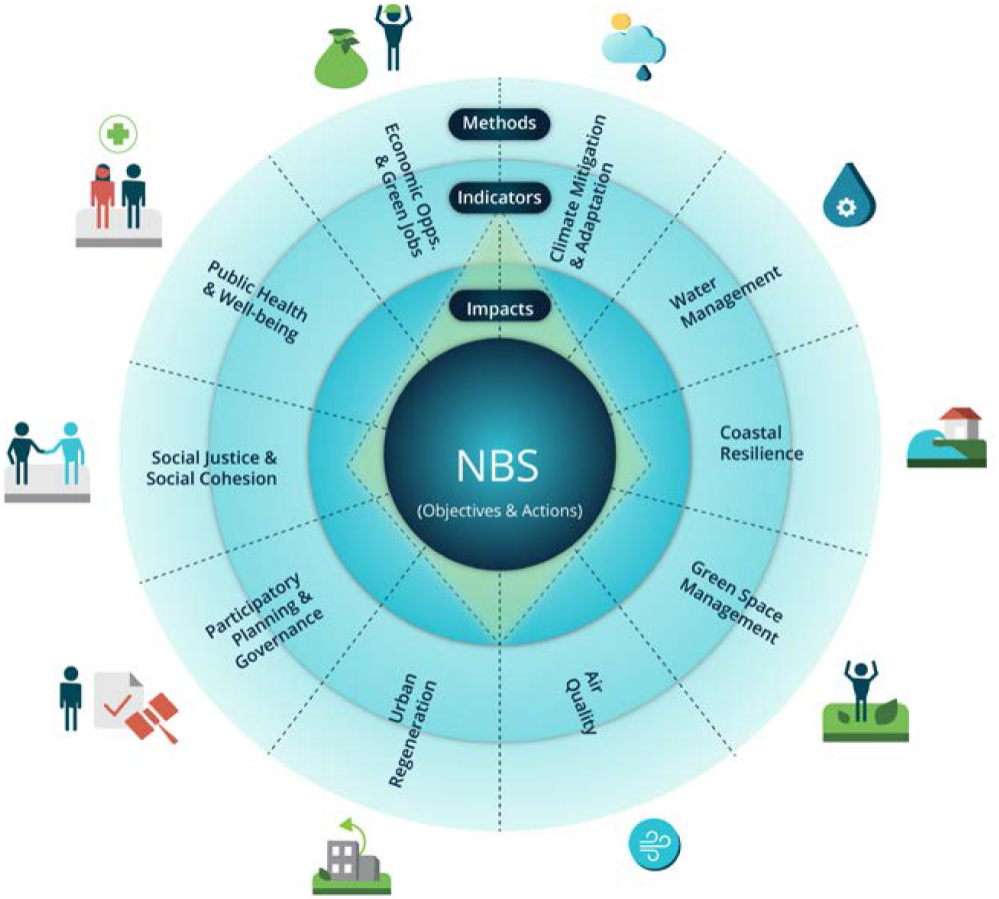
Knowledge & Learning Mechanism on Biodiversity & Ecosystem Services

An impact evaluation framework to support planning and evaluation of nature-based solutions projects

An EKLIPSE Expert Working Group report



Horizon 2020
European Union Funding
For Research & Innovation
Grant agreement 690474



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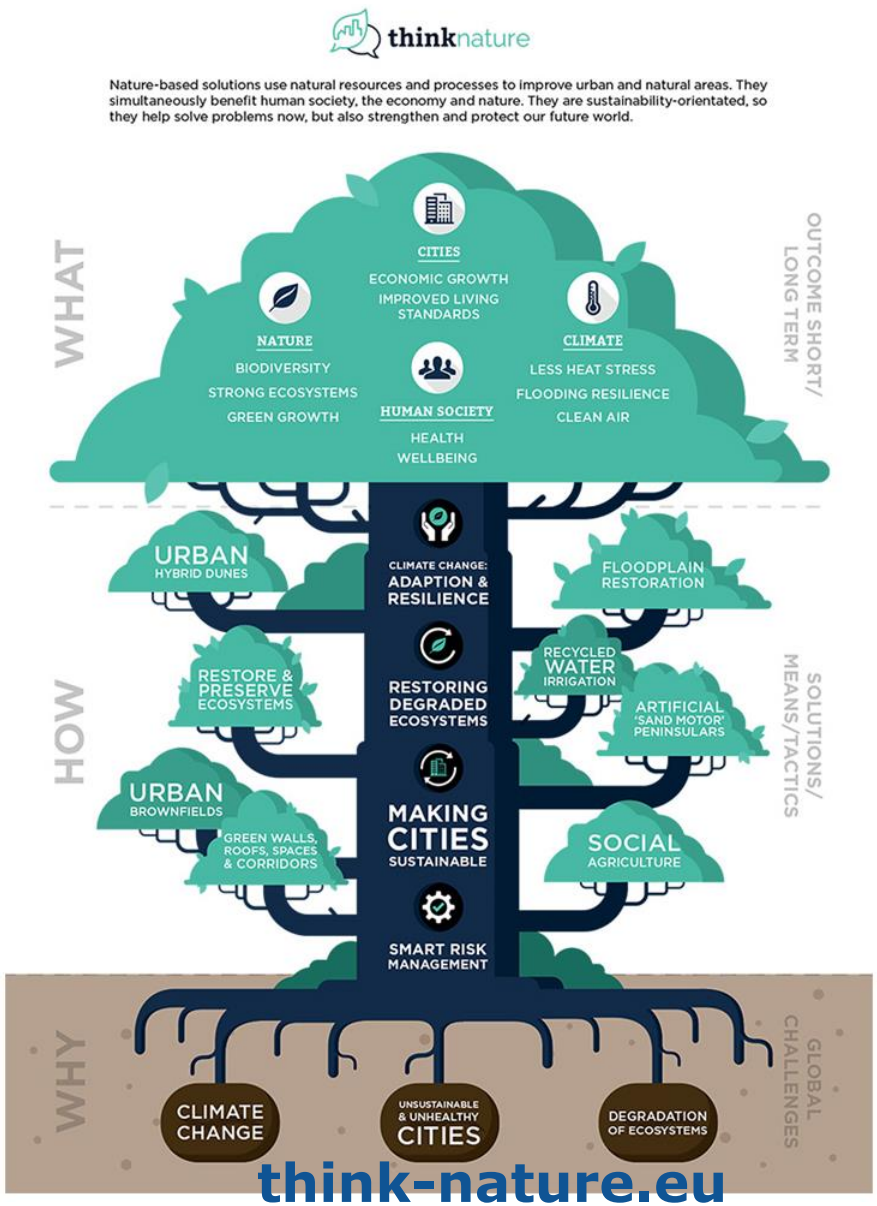
Oppla

Oppla.eu



think-nature.eu

R&I Projects work together to jointly

- **Establish a common framework for nature-based solutions:**
  - ✓ **Taskforce on indicators (evaluation framework based on EKLIPSE IEF),**
  - ✓ **Taskforce on common Knowledge repository and data management**

- **Develop new business and governance models and look into financial mechanisms, building the business case for NBS:**
  - ✓ **Task Force on governance and business models:**
    - **Economic evaluation of NBS benefits/cost-effectiveness**
    - **Business models and financial mechanisms**
    - **Barriers and enablers/governance models**

- **Build a NBS&Innovative community of practice with the help of the NBS stakeholder platform THINK NATURE:**
  - ✓ **Communicators network created**

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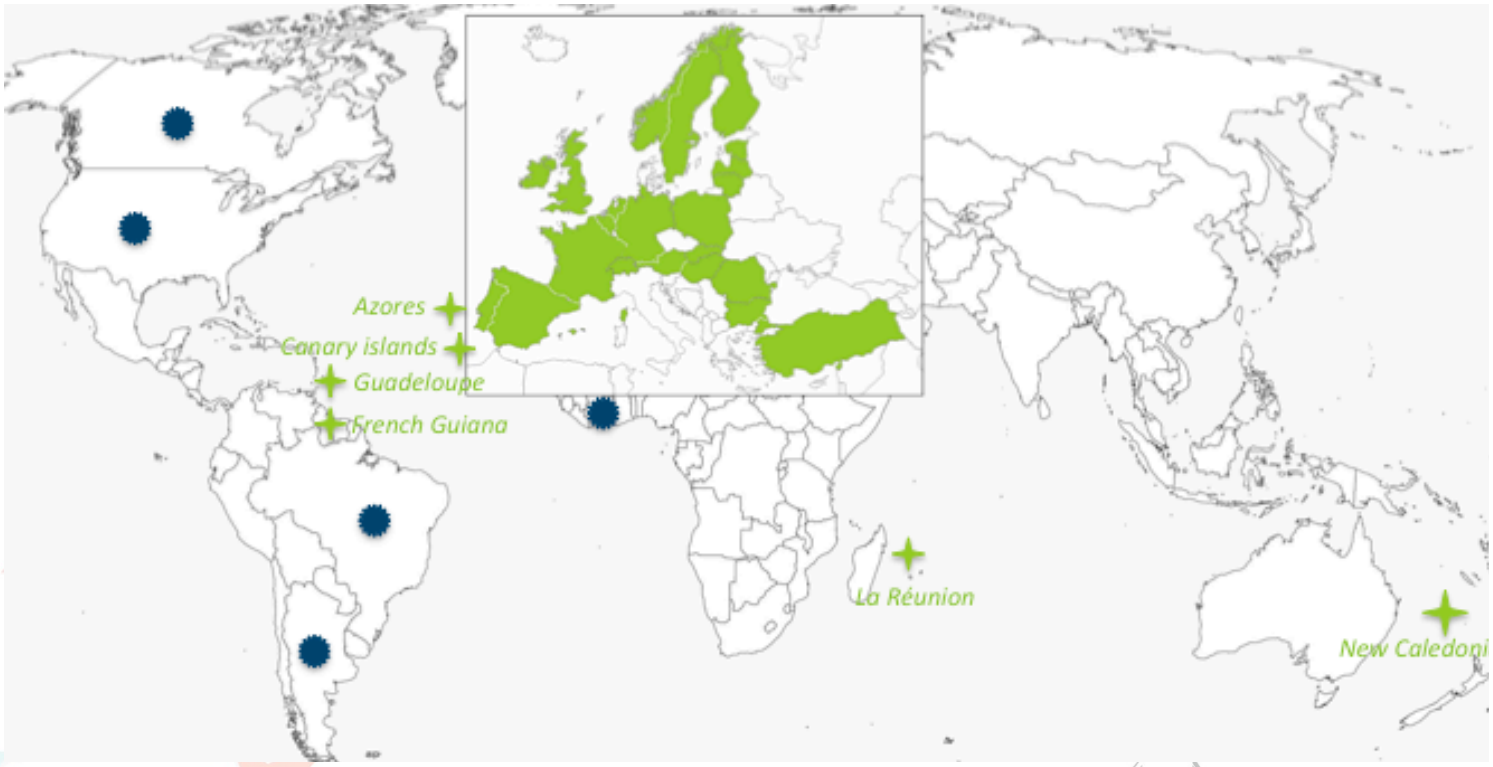
Research on Biodiversity

BiodivERsA integrates national programmes & funds to achieve resource efficiency and synergy, and build up the European Research Area for research on Biodiversity and NbS

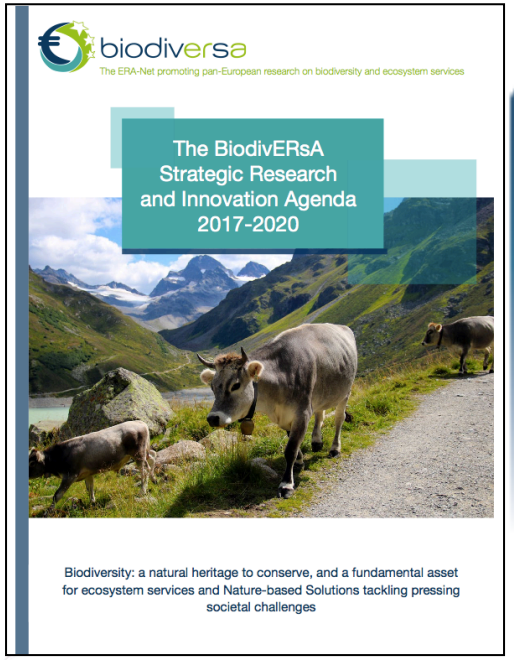


Green: BiodivERsA partners
Blue: international partners in BiodivERsA calls

European Commission

biodiversa

The latest BiodivERsA SRIA : 2016



CORE THEMES

CT1 - Better knowledge on biodiversity, its dynamics and its adaptation capacity to global change: a basis for supporting biodiversity conservation and restoration

CT2 - Biodiversity: a fundamental asset for the functioning and resilience of ecosystems, provision of ecosystem goods and services, and improvement of human well-being

CT3 - Biodiversity, a fundamental asset for Nature-based solutions to pressing societal issues and for promoting transition towards sustainable socio-economic pathways

http://www.biodiversa.org/1226

European Commission

URBES project funded by BiodivERsA in 2011

Topic: role of urban biodiversity and ecosystem services for human well-being in cities

Future BiodivERsA call on 'Biodiversity & climate change', planned fo 2019 jointly with the EC: topic on NbS for tackling the climate change challenge

… open to participation from non European countries like Brazil!

European Commission

4 What is the role of business in NBS?

- The NBS value chain
  - Consultancies
  - Providers of living and non-living materials
  - Technologiy providers
  - Builders
  - Companies in need of environmental compensation, PES
  - Utilities (water, energy)
  - Real estate developers
  - Financing

What kind of businesses and participating in which ways?

How to ensure business participation in NBS?

How to create a convincing business case for NBS?

European Commission

European Business and Biodiversity (B@B) Platform

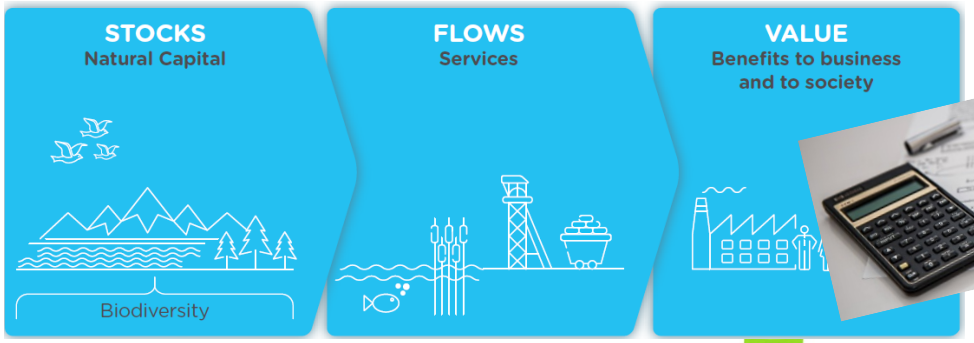
- **EU level forum for dialogue about the links between business and biodiversity.**
- **Dialogue and showcasing best practice to integrate impacts and dependencies into business**
- **Working with business to develop tools and approaches**

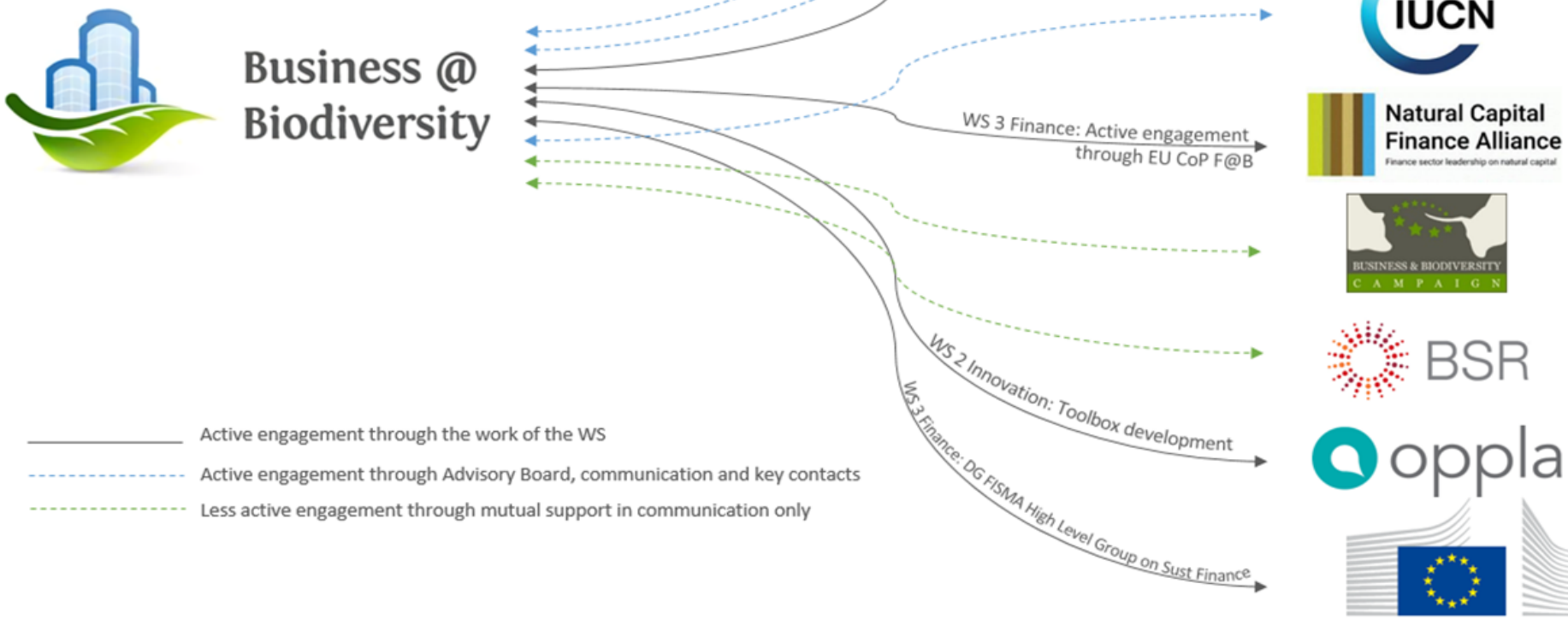
Current EU B@B Workstreams :

1. **Natural Capital Accounting**

2. **Innovation for Biodiversity and Business**

3. **Financing**




Business @ Biodiversity
WS 1 NCA: Biodiversity complement for NCP
WS 3 Finance: Active engagement through EU CoP F@B
WS 2 Innovation: Toolbox development
WS 3 Finance: DG FISMA High Level Group on Sust Finance
Active engagement through the work of the WS
Active engagement through Advisory Board, communication and key contacts
Less active engagement through mutual support in communication only
Global Partnership for Business and Biodiversity
wbcsd
NATURAL CAPITAL COALITION
IUCN
Natural Capital Finance Alliance
Finance sector leadership on natural capital
BUSINESS & BIODIVERSITY CAMPAIGN
BSR
oppla

WS 1 – corporate Natural Capital Accounting

- Consider methodologies establishing good practice principles in natural capital accounting:
  - **Which NCA approach is the most suitable to different business'?**
  - **What are the differences between NCA approaches for Businesses and financial institutions?**
- **Focus on biodiversity and ecosystems**

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WS 2 Innovation

- Showcase and promote innovations that contribute to nature protection
- sharing best practices and new business models
- analyse opportunities and identify research needs
- 28 case studies

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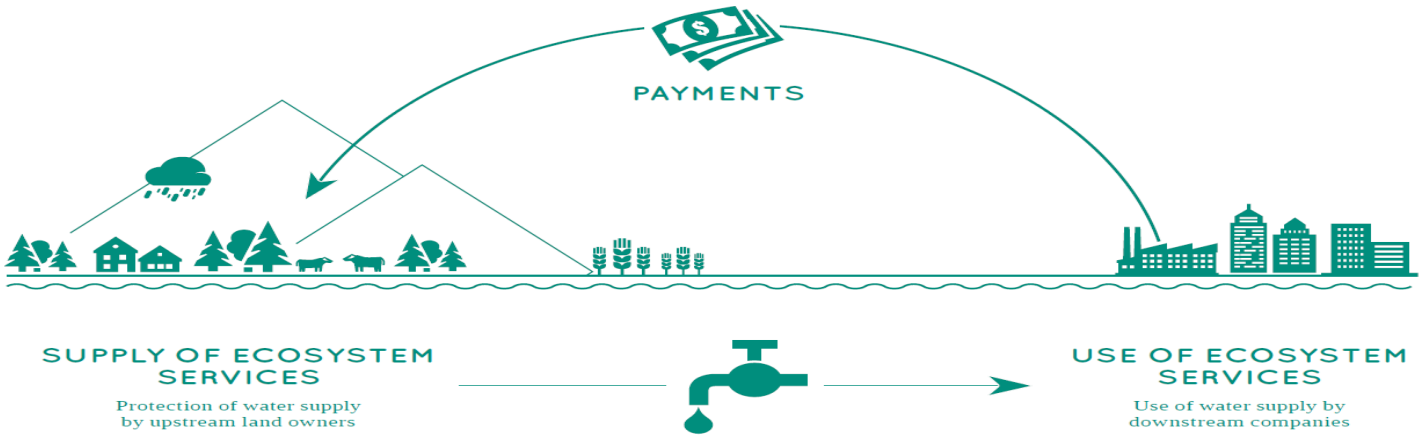
WS 3 Innovative Financing



- Explore key issues and challenges for integrating biodiversity into the financial sector
- Opportunities and challenges for developing biodiversity / natural capital asset classes and investments
- The EU Community of Practice Finance@Biodiversity

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5 Horizon 2020 - Work Programme 2018-2020

R&I investment of € 30 billion for 3 years

- **Addressing main concerns of citizens** such as security, migration and economic situation
- **Focus on impact** (fewer & broader topics with sharpened impact statements, better dissemination of results)
- **Piloting new initiatives** and **flexibility for 2020**, with 'minimum' content of calls and other actions at this stage

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Societal Challenge 5: Climate action, environment, resource efficiency and raw materials

Work Programme 2018-2020

Focus:

- ✓ moving to a greener, more resource efficient and climate-resilient economy in sync with the natural environment
- ✓ demonstrating a strong commitment to supporting the UN's Sustainable Development Goals (SDGs) and the targets of the COP21 Paris Agreement

2 multiannual calls:

"Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement"

"Greening the economy in line with the Sustainable Development Goals (SDGs)"

Total indicative budget 2018-2020 €1.1bn

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Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

Innovating cities for sustainability and resilience

2019 topic:

- **SC5-13-2018-2019: Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems (RIA)**

  Strengthening EU-CELAC collaboration (2019)

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SC5-13-2019: Strengthening EU-CELAC cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems (1/2)

- Models, tools, DSS, methodologies, guidelines, standards, indicators ….. for the **design, construction, deployment** and **monitoring** of **nature-based solutions** for **restoration and rehabilitation** for **urban and peri-urban ecosystems**;
- **Systemic "approaches"** embedded in an "**integrated and ecologically coherent urban planning and city-making process**";
- Review and capitalise upon **existing experiences** and **good practices** in Europe and CELAC;
- Methodologies for assessment of **cost-effectiveness** of measures, accounting for **totality of the benefits** by restored ecosystems;

SC5-13-2019: Strengthening EU-CELAC cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems (2/2)

- Raise **awareness** through **outreach** and **education** activities about benefits from nature;
- **Multi-stakeholder**, **multi-disciplinary** (including social sciences and humanities) and **balanced** (effort and/or number of partners) **EU-CELAC consortia**
- Indicative budget per proposal: **EUR 5 million**
- Two-stage call: 19 Feb 2019 (1st Stage), 4th September 2019 (2nd Stage);

Eligibility and admissibility conditions

Consortia must comprise **at least three participants from CELAC**

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Horizon 2020 Work Programme for Research & Innovation 2018-2020

- **Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems**
- **Visionary and integrated solutions to improve well-being and health in cities**
- **Biodiversity and climate change**
- **Innovative nature-based solutions for carbon neutral cities and improved air quality**
- **Climate resilience of coastal cities**

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European Commission

A renewed agenda for Research and Innovation

Europe's chance to shape its future

The Commission's Contribution to the Leaders' Agenda

#FutureOfEurope #EURoad2Sibiu

May 2018

Investing in research and innovation is investing in Europe's future.

It helps us to compete globally and preserve our unique social model. It improves the daily lives of millions of people here in Europe and around the world, helping to solve some of our biggest societal and generational challenges.

6 Horizon Europe

- **Indicative budget of EUR 100 billion**
- EUR 25 billion are foreseen for environment-related Research and Innovation across two main clusters of global challenges:

  - 'Food and Natural Resources'

  - 'Climate, Energy and Mobility'

- It also foresees the programming of a number of missions. These should be bold, with ambitious goals and strong European added value, to tackle issues that affect our daily lives.

Welcome
THE FUTURE
IS NOW

Thank you!

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More information:
www.ec.europa.eu/research

Participant Portal:
www.ec.europa.eu/research/participants/portal/desktop/en/home.html

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