

INNOVATING WITH NATURE

Nature-based solutions are designed to bring more nature and natural features and processes to cities, landscapes and seascapes. These innovative solutions also support economic growth, create jobs and enhance our well-being.



CHALLENGES

CLIMATE CHANGE AND ENERGY

1980-2010
EUROPE LOST €300 billion due to storms, landslides, floods, mud flows

There is high confidence that these losses will increase in the long term

BUILDINGS
35% of the EU's CO₂ emissions
40% of energy consumption

UNSUSTAINABLE & UNHEALTHY CITIES

1980-2010
75,000 DEATHS in the EU due to heatwaves
= 67% of all deaths from natural disasters

More Europeans may be impacted by heat waves until 2040, particularly in terms of health and well-being

2012
AIR POLLUTION
 fine particles in the air cause **~4 million** premature deaths worldwide

DEGRADATION OF ECOSYSTEMS

2011-2020
 up to **€50 billion/year**
 = **EU OPPORTUNITY COST** of not halting biodiversity loss and degradation of ecosystem services

Degradation of ecosystems = **LESS WATER PURIFICATION**

Globally, **20%** of urban drinking water is polluted

Currently, **emissions from drained peatlands** = **5%** of total global anthropogenic greenhouse gas emissions

INVESTING IN NATURE CAN PROVIDE EFFECTIVE SOLUTIONS

- sustainable
- resilient to change
- contribute to green growth
- create new jobs

INCREASE RESILIENCE

Green roofs can cool buildings in the summer and prevent heat loss in the winter

-10% energy use

European market for green roofs
+ €380m sales
+ 11m m² yearly

FLOOD RISK REDUCTION
 Green infrastructure can reduce flood risks

Malmö, Sweden

The city invested in sustainable urban regeneration, and installed green roofs and an open storm water system

-50% run-off ↓ **less flood damage**

-20% environmental impact

+50% biodiversity

30% unemployment to **6%**

DECREASE URBAN HEAT STRESS

Trees, green space and vegetation can attenuate urban heat stress and reduce temperatures by **up to 13°C** compared to full sunlight

pilot study in Manchester, UK

IMPROVE AIR QUALITY
 HEALTH AND WELL-BEING

Trees and green walls can halve the amount of health threatening particles in the air

10% more urban green space

can reduce health care and sick leave costs by **€400m/year** per 10m inhabitants

study done in Amsterdam

ENSURE WELL FUNCTIONING ECOSYSTEMS

Restoration and preservation of ecosystems can provide very high returns on investment and help to avoid costs of expensive infrastructure

EFFECTIVE CO₂ STORAGE

Northern Germany

RESTORING 10% OF DRAINED PEATLANDS
 avoids damages worth **€22m/year** from CO₂ emissions

WATER SUPPLY AND PURIFICATION

North Western England

RECOVERING PEATLANDS
 is estimated to achieve **~€3m/year** of saved water supply and purification costs

Vienna

32,000ha of forests
 Schneealpe mountains eliminating the need for a water treatment plant

Planning, developing, implementing and monitoring these nature-based solutions needs a high as well as low-skilled workforce. Investing in nature-based solutions creates more sustainable jobs: Environment and energy efficient jobs in the EU increased by 20% during the recession (2007-2011).

EU RESEARCH AND INNOVATION IN NATURE-BASED SOLUTIONS THROUGH HORIZON 2020

€120m in 2016-17 for 'Innovating with Nature' research and innovation activities in cities and rural areas

open access to evidence and data to support and stimulate public and private investment

LARGE-SCALE DEMONSTRATION PROJECTS
 living labs connect researchers, public authorities, businesses, industry, local communities

CO-DESIGN, MUTUAL LEARNING
 local, regional and national decision-makers, researchers, private investors, businesses and industry and citizens will be encouraged to collaborate, design and implement innovative solutions

EXAMPLES

TURAS SUSTAINABLE CITIES

- green walls and roofs
- urban brownfields
- social agriculture
- biomimicry – innovation inspired by nature
- novel design

<http://goo.gl/SCGsqv>

GREEN SURGE MAJOR URBAN CHALLENGES

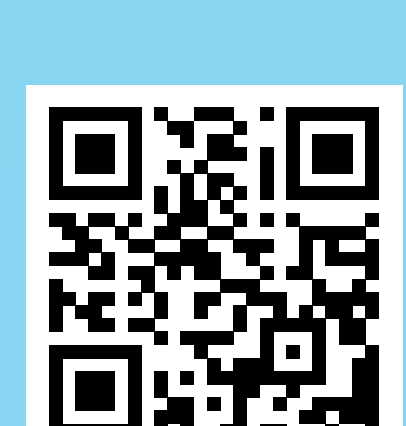
→ identifies, develops and tests ways to link green spaces, biodiversity, people and the green economy

<http://goo.gl/c2Zs15>

OPERAs ECOSYSTEM SCIENCE FOR POLICY & PRACTICE

→ applies nature-based solutions in the real world: e.g. urban hybrid dunes for storm and coastal protection, recreation and biodiversity conservation

<http://goo.gl/8EqrLD>



Find out more about nature-based solutions: <https://goo.gl/Hf23xb>