

# Examples of Nature-Based Solutions from Europe

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Promoting Urban Nature for more Resilient Cities. Examples from Brazil and Europe**  
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## EU-BRAZIL SECTOR DIALOGUE ON NBS aims at:

*“Fostering a learning alliance about Nature-Based Solutions (NBS) for sustainable cities, which will be the basis for identifying common research and innovation agendas for the cooperation between the EU and Brazil in this particular field.”*

Currently, a **mapping study** is being carried out to select relevant examples of successful Nature-Based Solutions that have been recently implemented or are under development both Europe and Brazil.

The cases are being studied and compared with a particular emphasis on their potential for **REPLICABILITY**, **SCALABILITY** and **ADAPTATION** to the local context. In addition, they should address the **three pillars of sustainability**: environmental, social and economic.

# Some NBS examples from the EU (I)

## NORTHERN EUROPE

**Tampere, Finland (225,150 inhabitants)**

**Case: Vuores eco-efficient district and Hiedanranta**

*Main challenges:* Waterfall in Finland will increase by 25% in the coming years due to climate change. Therefore, critical issues are **flooding** and **storm water management**. Other challenges include **air and water pollution** and **reduced biodiversity**.

## SOUTHERN EUROPE

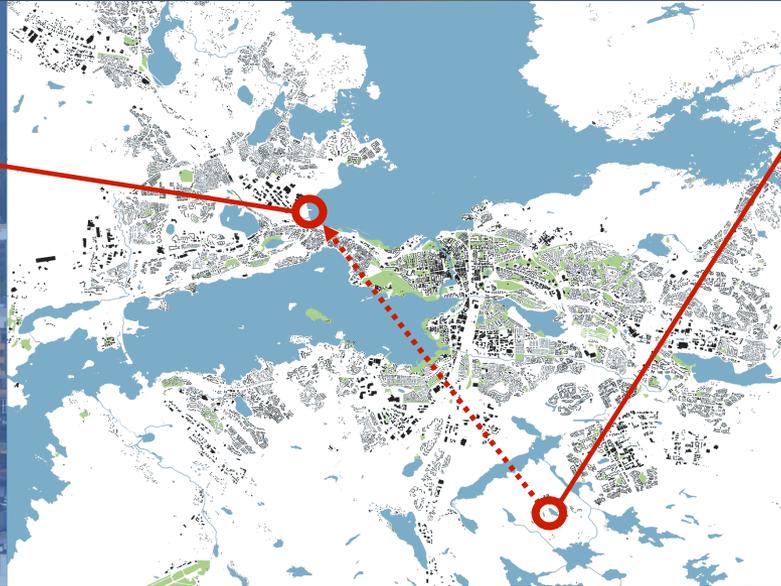
**Milan, Italy (4.1 million inhabitants)**

**Cases: Bosco Verticale and Parco Agricolo Sud**

*Main challenges:* **Abandoned areas** (in the metropolitan area) recently redeveloped have provided opportunities to implement green solutions. Milan needs to deal with **traffic pollution**. More than 60 % of the soil is sealed, therefore reducing **soil consumption** is also a major challenge.

# TAMPERE, Finland

**Hiedanranta** is a former industrial area that will be developed into a housing area for **25,000 people** and more than **10,000 jobs**



**Vuores** is the main demonstration site. A green district to be completed by 2030, with residences for **13,000 people** and **3,000 to 5,000 jobs**

Copyright: City of Tampere/Atacan Ergin 2014

# TAMPERE: Vuores eco-efficient district



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# MILAN, Italy

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Bosco Verticale,  
Porta Nova  
neighbourhood



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# MILAN: Bosco Verticale

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**2** residential towers 110 and 76 m high

**900** trees (each measuring 3, 6 or 9 metres)

**20,000** plants (a wide range of shrubs and floral plants) distributed according to the sun exposure of the facade

**2 ha** of forest – equivalent to the ecosystem services from the plants in the two towers (CO<sub>2</sub> storage, air quality, biodiversity improvement)



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# MILAN: Parco Agricolo Sud



Different agricultural areas. Over **1,000** active farmers are involved. Peri-urban farming is of primary importance not only for soil conservation but also for food production.

Copyright: Parco Agricolo Sud di Milano

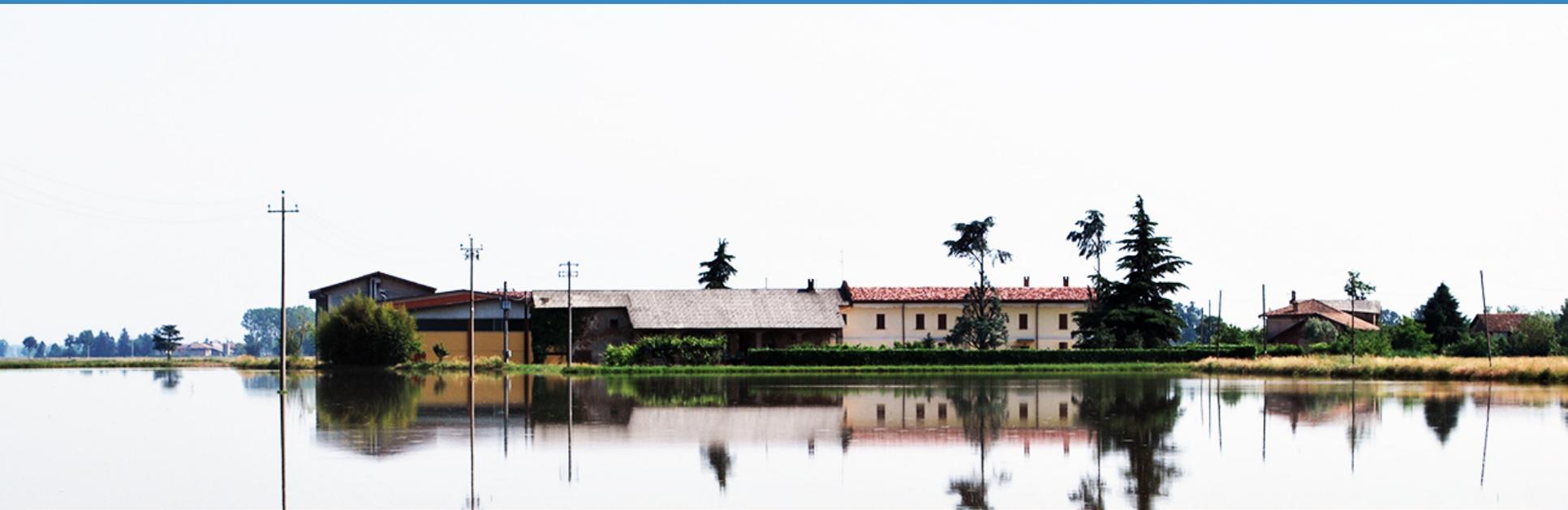


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# MILAN: Parco Agricolo Sud



- Offers farming, forestry, cultural and recreational activities, and the use of NBS
- Preserves the landscape and ensures environmental recovery of the areas, connecting town and country and linking outer areas with the urban green system
- Some areas are dedicated to rebuilding ecosystems and reintroducing fauna species that are becoming rarer

Copyright: Parco Agricolo Sud di Milano



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# Some NBS examples from the EU (II)

## NORTHERN EUROPE

### Eindhoven, The Netherlands (230,000 inhabitants)

*Case:* **Water courses and NBS for the city centre**

*Main challenges:* Deriving from **rapid growth** that defies **urban sustainability** and **quality of life** in the city. Objectives: Improvement of storm water management, reduction of heat stress; increasing biodiversity. Other challenges are improvement of air-quality and water-quality.



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## SOUTHERN EUROPE

### Lisbon, Portugal (545,000 inhabitants)

*Cases:* **Sustainable urbanization, urban farming, green corridors and green streets**

*Main challenges:* Over the last few decades, Lisbon has lost a third of its residents due to **uncontrolled urban development**. This has **deteriorated the quality of life** in the city, which faces challenges such as ‘heat island effect’, floods, air pollution and unequal distribution of green spaces.



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# EINDHOVEN, The Netherlands



Copyright: City of Eindhoven



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# EINDHOVEN: Construction & restoration of water courses



Map of existing water courses to be restored (in blue) and new ones to be constructed (in red).



Copyright: City of Eindhoven



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# EINDHOVEN: Less pavement & green dip the city centre

Copyright: City of Eindhoven

Implementation of **green spaces/shade**

Linking of **blue-green urban areas**

Preparation of **water storage areas**

Implementation of **green roofs** and **green façades**

Green façades for cooling



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# LISBON, Portugal



Copyright: Turismo de Lisboa



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# LISBON: Sustainable urbanization, green corridors & streets

The Eixo Central regeneration replaces grey infrastructure with green areas, more permeable coatings and street trees, in some of the main avenues of central Lisbon.



**Urban regeneration** of degraded historic neighbourhoods  
Improved **citizen's wellbeing** and **city's attractiveness**  
One public **green area** in each **neighbourhood**

Copyright: Câmara de Lisboa



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# LISBON: Urban farming

**View of the Quinta da Granja urban garden**



Copyright: Câmara de Lisboa

**16 allotment gardens** integrated in Lisbon's green infrastructure

**Regeneration** of urban voids and abandoned areas

One of them, Parque Hortícola de Chelas, is the **largest designed horticultural park in Europe**

Promote **biodiversity** and **social inclusion**

Consider **water** and **energy savings**



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# Replicability, scalability and local adaptation (I)

## TAMPERE > Multi-stakeholder

### *Lessons learnt:*

- **Co-creation processes** with different stakeholders (even children) have provided the opportunity for mapping different viewpoints for further development of existing NBS.
- Increased **social cohesion**.
- **Co-operation with local universities and a SME** producing bio-char is leading to the development of new bio-filtration solutions to treat contaminated waters which also creates new business opportunities around NBS.

## MILAN > Multi-stakeholder

### *Lessons learnt:*

- Bosco Verticale – Improved **biodiversity** and **air quality**; **CO2** storage; **less urban sprawl**; noise control; quality of life.
- Parco Agricolo – **Complexity**; not only contributes to the protection of the environment and promotes a variety of agricultural practices, but also provides opportunities for leisure and recreation.



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# Replicability, scalability and local adaptation (II)

## EINDHOVEN > Multi-stakeholder (quintuple helix approach); emphasis on co-creation and engagement

### *Lessons learnt:*

- Involve colleagues from **maintenance**
- **Inspire**, show advantages, convince
- **Manage expectations**
- Put appointments/agreements in **writing**
- **Learn** from experiments
- Experiments leading to **implementation**

## LISBON > Multi-stakeholder

### *Lessons learnt:*

- These projects helped mainstream the idea that a **healthy environment and urban regeneration** can complement each other in innovative ways.
- Diverse range of **leisure and sports activities**, linking the new urban spaces with the river and **protecting the city** from **rising sea water levels**.
- **Even during a financial crisis** a city can improve its **citizens' wellbeing** and its environment with **small-scale measures** relatively cheap to implement.

# Thanks for your attention!

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