

Decision support guidelines for climate resilient cities and NBS

Decision support guidelines have been created with the aim of helping the municipalities in identifying and deciding between all the existing methods and tools that exist to analyze the climate resiliency of cities and the nature based solutions.



City



NBS



Adaptation



Mitigation

Do you want to assess climate trends that could affect your city? 1

☐ Air Temperature ☐ Rainfall ☐ Air Quality

Which kind of threats/impacts do you want to consider? 2

☐ Colder winters, warmer summers ☐ Urban Heat Island ☐ Flooding/Runoff
☐ Air Pollution ☐ Water Quality ☐ Wind Field

Which strategy do you want to implement? 3

☐ **Adaptation**
The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.

☐ **Mitigation**
A human intervention to reduce the sources or enhance the sinks of greenhouse (GHGs).

Which kind of outputs do you want to obtain? 4

☐ Quantitative assessment ☐ Qualitative assessment ☐ Decision support

Which indicators do you want to take into account? 5

☐ Building cooling energy demand reduction ☐ Building heating energy demand reduction ☐ GHG reduction
☒ Primary energy demand reduction ☐ Runoff reduction ☐ Carbon sequestration ☐ External air temperature reduction

At what scale do you want to work? 6

☐ Object ☐ District or Neighborhood ☐ City ☐ Up to the city

Are you interested in specific NBS? 7

☒ Parks and gardens ☐ Structures associated to urban networks ☐ Structures characterized by food and resources
☒ Natural and semi-natural water bodies and ☐ Constructed wetlands and structures ☐ Green roofs ☐ Urban planning
☐ Works on soil ☐ Vertical structures ☐ Direct human interventions

Availability 8

☐ License of the tool
Thus, the user can perform all the assessment

☐ Experts Service
Thus, the service is subcontracted

☐ Documentation
Thus, information is available

Budget 9

☐ Up to 30000 ☐ From 10,000 to 30,000 ☐ From 250 to 10,000 ☐ Free

The user answers 9 questions. Multiple choices are allowed

Expresion of interests

Engine of the guideline

Results visualization

Forms of the 23 methods that can fulfill user's interests

Repository

Completed information about methods

Climate trends

- ✓ Air Temperature
- ✓ Rainfall
- ✓ Air quality

Threats/Hazards

- ✓ Colder winters, warmer summers
- ✓ Urban heat island effect
- ✓ Runoff
- ✓ Air pollution
- ✓ Water quality
- ✓ Wind field

Strategies

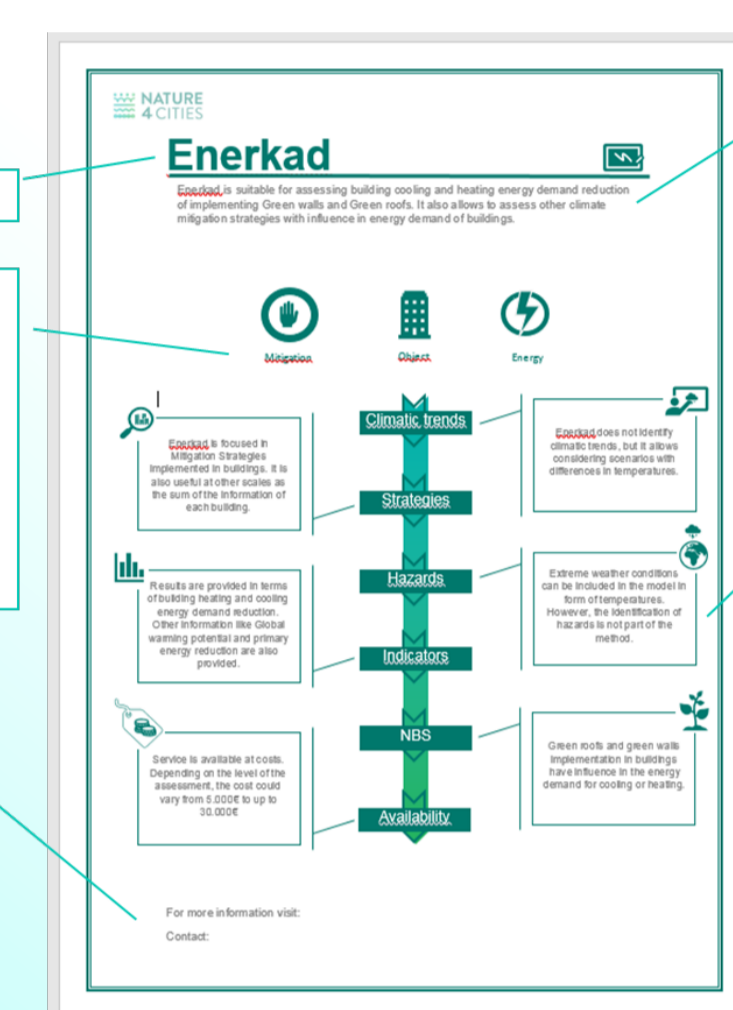
- ✓ Mitigation
- ✓ Adaptation

Indicators

- ✓ Building cooling and/or heating energy demand reduction
- ✓ Global warming potential reduction
- ✓ Primary energy demand reduction
- ✓ Runoff reduction
- ✓ Carbon sequestration
- ✓ External air temperature reduction

NBS

- ✓ Parks and gardens
- ✓ Structures associated to urban networks
- ✓ Structures characterized by food and resources production
- ✓ Natural and semi-natural water bodies and hydrographic networks
- ✓ Constructed wetlands and built structures for water management
- ✓ Green roofs
- ✓ Urban planning strategies
- ✓ Works on soil
- ✓ Vertical structures (green walls and façades)
- ✓ Direct human interventions



Name

Issues covered by the method in terms of 1) climatic trends, 2) strategies, 3) Scale, 4) NBS effectiveness (see next slide for more symbols). Please, include only the those that are the focus of the method. If the method considers more issues, they can be included in next boxes.

Link to the place where they can find more information in case they are interested and a contact (if considered interesting)

Short description focused on the purpose of the task: how this method is useful to assess NBS effectiveness to improve city resiliency

More information about the method that can be helpful for a municipality to understand if this is the most interesting method that exist for the aim of his study (how it is considered the climatic trends, the strategies, the hazards, the indicators, the NBS and the availability of it.

☐ Envi-MET ☐ Library of Adaptation Option ☐ Design Builder ☐ EPA SWMM

☐ Enerkad ☐ Green Pass ☐ HAVURI ☐ NEST

☐ CITY-CAT ☐ SWAT ☐ Climate-ADAPT ☐ Ravman

☐ Fault tree analysis ☐ SIRVA ☐ Simile ☐ URB-CLIM

☐ EPESUS ☐ Enviro-HIRLAM ☐ PLINIVIS ☐ IVAVIA

☐ TER ☐ I-tree Eko ☐ Solweis

Nature4Cities consortium

> 6 leading Research and Technology Organizations

NOBATEK/INEF4 (FR) – Coordinator
Cerema (FR), Tecnalia (ES), Eurecat (ES), Cartif (ES), Luxembourg Institute of Science & Technology (LU)

> 4 universities

University of Nantes / IFSTTAR (FR), Agrocampus Ouest (FR), University of Szeged (HU), Middle East Technical University (TR)

> 2 leading industrial organizations

Acciona Construction (ES), Acciona Ingeniería (ES), Rina Consulting (IT)



> 9 Small and Medium-sized Enterprises (SMEs)

Green4Cities (AT), Terranis (FR), Colouree (IT), Duneworks (NL), Argedor (TR), Ekodenge (TR), Innova Integra (UK), R2M Solution (IT), Grün statt Grau (AT)

> 2 clusters of stakeholders

Plante & Cité (FR), Hungarian Urban Knowledge Center (HU)

> 4 pilot cities

Alcala de Henares (ES), Città Metropolitana Di Milano (IT), Szeged (HU), Çankaya (TR)



Join the community!

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