NBS URBAN Map of potential Natural Solutions for Local Adaptation to Climate Change [1]

The **NBS URBAN** project seeks to integrate nature into urban planning, reinforcing the use of ecosystems and nature together with existing infrastructures in order to locally adapt to climate change in the Basque Country region, using for such purpose a map for their identification and deployment.

The Map of the potential of Natural Solutions provides local administrations with a clear, coherent and easily reproducible methodological sequence that allows them to identify and map both the existing natural solutions and the potential for their development to adapt to climate change.

The Map of the potential of Natural Solutions has been implemented as a pilot in the Municipality of San Sebastián, in the context of its Local Adaptation Plan.

Case Study Description
Challenges:
The Autonomous Community (Region) of the Basque Country has planning and management responsibilities in many areas that are sensitive to climate and, therefore, vulnerable to climate change. On the other hand, more than 75% of the population lives in urban environments, facing specific and local problems derived from the impacts of climate change. The urban metabolism, understood as the flows of energy and the cycles of matter that circulate and feed the cities and territories where they settle, is specifically affected by the effects of climate change, which causes impacts in multiple areas, services and sectors where planning and management by local administrations can provide solutions that minimize their vulnerability.

In the international context of discussion on the policies of adaptation to climate change, a clear commitment can be perceived on measures that are based on the integration of nature in anthropized environments, highlighting also the importance and the potential of adaptation of the municipalities due to their urban transformation capacity and proximity to citizens.

Green spaces and the “greening” trend are seen as a driver for change, particularly in the urban areas of the municipalities, turning inert asphalt into green, permeable areas. In the field of adaptation to climate change, Natural Solutions seem to be an opportunity.

Objectives:
Integrate nature into urban planning by strengthening the use of ecosystems and nature together with existing infrastructures to adapt to climate change in the local setting of the Autonomous Community of the Basque Country.

Provide local administrations with a clear, coherent and easily reproducible methodological sequence that allows them to identify and map both the existing Natural Solutions and the potential for their development to adapt to climate change, leveraging the available resources and taking the path of adaptation.

Adaptation measures implemented in the case study:
Structural/physical: Ecosystemic options [2]
Institutional: National and governmental policies and programs [3]

Social: Education options [4]

Solutions:

The Map of Natural Solutions for Local Adaptation to Climate Change provides a clear, coherent and easily reproducible methodological sequence that has been implemented as a pilot in the Municipality of San Sebastián, in the context of its Local Adaptation Plan. This innovative methodology allows to:

- Identify the natural capital of a municipality and its adaptation assets, that is, those natural measures already adopted in the local area that already contribute to adaptation today.
- Identify the spaces and urban elements available that can accommodate natural solutions.
- Establish priorities and coordinate efforts to launch adaptation measures and actions in the most vulnerable spaces and with the greatest availability for deployment.
- Identify new areas of development and/or urban generation that could host natural solutions.

Create synergies between adaptation and mitigation measures and actions.

Importance and relevance of the adaptation:

Adaptation is the core part of the project.

Additional Details

Stakeholder engagement:

TECNALIA Research & Innovation along with international partnerships has developed the NBS methodology thanks to the call of the KLIMATEK program: R + D projects, Innovation and demonstration on adaptation to climate change 2016, promoted by the Basque Government. In order to provide the project with a practical and demonstrative nature, the NBS methodology has been developed by applying it to the municipality of Donostia/San Sebastián. The results of the NBS mapping of this city will serve as the basis for the preparation of its Adaptation to Climate Change Plan.

The main beneficiaries are:

- City councils and all the organizations that depend on them, which, in the performance of their functions, can promote and implement the mechanisms that favor a “green” presence in the municipality and an urban design that is more inclusive with nature.

- Private initiatives, in the case of projects in which the promoter is not the public administration, that seek to include some type of natural solution in their actions as a measure of adaptation.

- The public in general; any citizen who wishes to undertake a specific intervention in their property, so as to gain a broad and integrating vision of the benefits that this small intervention may have in the area in which it is located and in the municipality as a whole.

The Donostia - San Sebastian pilot project has been accompanied by a participatory process with the aim of contributing to the citizens’ knowledge and awareness of the problem of climate change and, at the same time, leveraging their own knowledge of the city by making them participants in the identification of spaces or elements that can host nature-based solutions based.

- Sharing the initiative with the Urban Planning, Projects and Public Works, Maintenance and Services and Environment-Biodiversity departments.

- Participatory session in UPV’s University Campus of the UPV.

- Sharing the initiative with the private sector: meet with the M-etxea architects group.

- Workout with social agents: Plus +55 Association.

- Presentation of the project in the local Local Agenda 21, in order to include the concept of Natural Solutions in future agendas.

Project interest:
The map of Natural Solutions for Adaptation to Climate Change is conceived as a tool to support decision-making, aimed at defining an anticipated, proactive, planned and conscious adaptation strategy, based on the consideration of and, where appropriate, integrating nature into urban planning, through the creation and application of a clear, coherent and easily reproducible methodology.

It is a significant contribution to the progress of integrating adaptation into planning and management, and to the increase of the resilience of systems, sectors, resources and geographical areas vulnerable to climate change.

Success and limiting factors:
Limiting factors:

-Institutional or jurisdictional barriers. Lack of jurisdiction to act on the part of the local institution, as the land where a Natural Solution could be implemented falls under the jurisdiction of another agency or in private hands.

-Social barriers. Changes in land use can create social controversy. To avoid this, interventions must be accompanied by sound education and awareness programs.

Budget, funding and additional benefits:
Total Project amount: 50,000 euros.

Source of financing: KLIMATEK Program of the Basque Government - Ihobe.

Natural Solutions are characterized by their multifunctionality, that is, by having the goal of providing multiple benefits that can go far beyond the scope and objective of adaptation to climate change for which they were originally designed and for offering several collateral benefits in terms of environmental quality (in the water, noise, air and soil vectors), human health and well-being, urban regeneration capacity, improvement of habitability conditions, increase in land value, job creation, etc.

Legal aspects:
The Map of Natural Solutions for Local Adaptation to Climate Change has been implemented as a pilot in the Municipality of San Sebastian, in the context of its Local Adaptation Plan.

The results of the mapping of Natural Solutions in the context of urban planning for local adaptation to climate change have several readings and interpretations. The results must serve to:

- Inform decision-makers, providing a diagnosis of green capital as an input in the progress documents of Urban Planning General Plans.

-Likewise, inform the urban development instruments, for example, by providing design criteria for development and building in at-risk areas.

-Within the global scale of city’s strategy in the context of adaptation to climate change, the green solution availability map together with specific risk assessments, such as flood or temperature increases, can be valuable information when:

-Detecting the most anthropized zones of the municipality and which therefore may require preferential action when implementing natural solutions.

-Defining Action Plans geared at promoting certain actions applicable to the entire municipal scope: green roofs, sustainable drainage systems, re-greening of public roads, etc.

- Formulating a strategy according to the needs of the municipality, in agreement with the city council and integrating it in the municipal public management policy, both in the general urban planning and in the developmental planning, as well as in a future Local Adaptation to Climate Change Plan.

- Defining a monitoring and evaluation system of the efficiency of Natural Solutions to adapt to climate change and their co-benefits before other environmental, social and economic challenges.

Implementation time:
2016 - 2017

Reference Information
Contact:
Entity: Tecnalia Research&Innovation

Contact name: Efrén Feliú, email: efren.feliu@tecnalia.com [5]

Entity: Ihobe Sociedad Pública de Gestión Ambiental del Gobierno Vasco

Contact name: Mari Mar Alonso MariMar.Alonso@ihobe.eus [6]

Entity: Ayuntamiento de Donostia/ San Sebastián

Contact name: Ana Juaristi, email: ana_juaristi@donostia.eus [7]

Sources:
Ihobe, Sociedad Pública de Gestión Ambiental Departamento de Medio Ambiente, Planificación Territorial y Vivienda Gobierno Vasco (2017). *'Soluciones Naturales' para la adaptación al cambio climático en el ámbito local de la Comunidad Autónoma del País Vasco Guía metodológica para su identificación y mapeo. Caso de estudio Donostia-San Sebastián. (Nature-based solutions for local climate adaptation in the Basque Country)*

> In Spanish http://www.ihobe.eus/Publicaciones/Ficha.aspx?IdMenu=97801056-cd1f-4503-bafa-f54fa80d9a44&Cod=adbf2e51-3d8c-4879-ab8d-9a7ab8d48e45&Idioma=es-ES [8]
>
> In English http://www.udalsarea21.net/Publicaciones/Ficha.aspx?IdMenu=892e375d-03bd-44a5-a281-f37a7cbf95dc&Cod=adbf2e51-3d8c-4879-ab8d-9a7ab8d48e45&Idioma=en-GB&Tipo [9]=

Ihobe, Sociedad Pública de Gestión Ambiental Departamento de Medio Ambiente, Planificación Territorial y Vivienda Gobierno Vasco (2017). *Cambio climático en el País Vasco, 28 buenas prácticas.*

http://www.euskadi.eus/contenidos/documentacion/12practicas/es_def/adjuntos/28buenaspracticas.pdf [10]

Links
[1] https://www.adaptecca.es/en/casos-practicos/nbs-urban-map-potential-natural-solutions-local-adaptation-climate-change
[2] https://www.adaptecca.es/en/ce-opciones-de-adaptacion-implementadas/structuralphysical-ecosystemic-options

[3] https://www.adaptecca.es/en/ce-opciones-de-adaptacion-implementadas/institutional-national-and-governmental-policies-and
[4] https://www.adaptecca.es/en/ce-opciones-de-adaptacion-implementadas/social-education-options
[5] mailto:efren.feliu@tecnalia.com
[6] mailto:MariMar.Alonso@ihobe.eus
[7] mailto:ana_juaristi@donostia.eus
[8] http://www.ihobe.eus/Publicaciones/Ficha.aspx?IdMenu=97801056-cd1f-4503-bafa-f54fa80d9a44&Cod=adbf2e51-3d8c-4879-ab8d-9a7ab8d48e45&Idioma=es-ES
[9] http://www.udalsarea21.net/Publicaciones/Ficha.aspx?IdMenu=892e375d-03bd-44a5-a281-f37a7cbf95dc&Cod=adbf2e51-3d8c-4879-ab8d-9a7ab8d48e45&Idioma=en-GB&Tipo
[10] http://www.euskadi.eus/contenidos/documentacion/12practicas/es_def/adjuntos/28buenaspracticas.pdf