





# UrbanByNature

The Global Programme for Urban Nature Pioneers

Applying Connecting Nature IA Framework to integrate NBS in urban planning: case from Caucasus hub – Kutaisi, Georgia



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730222.





Connecting

naturebasedenterprise.eu/nbe-user-profile/gis-and-rs-consulting-center-geographic-231



About Oppo

Opportunities Challenges Communities 🗸



Contact Us

#### Currently displaying 3 products/services



GIS for urban revitalisation

#### Description of product

Application of geospatial solutions towards revitalisation planning and implementation of urban renovation, with full respect of cultural and natural heritage of the historic urban areas and by integrating nature-based solutions.

Market readiness level: Level 3: Fully tested and available on market

Contract type: Customised solution

Case study: The aim of the project, commissioned by The Tbilisi Development Fund, was to elaborate visions for spatialfunctional, architectural-planning development and reconstruction works at key section of Aghmashenebeli Avenue and adjacent areas. The integrated development concept addressed



#### Nature sensitive spatial planning

#### Description of product

Application of geospatial analysis in support of the development planning in high mountain areas of Caucasus Ecoregion with full respect towards the preservation and enhancement of natural and cultural values.

Market readiness level: Level 3: Fully tested and available on market

Contract type: Customised solution

Case study: The Ministry of Regional Development and Infrastructure of Georgia and the Mestia Municipality entrusted GeoGraphic with the preparation of the Spatial Development Plan for Upper Svaneti – an area of outstanding natural beauty and unique historical significance for the ntire Georgia and



#### Integrate NBS into Spatial Plan

#### Description of product

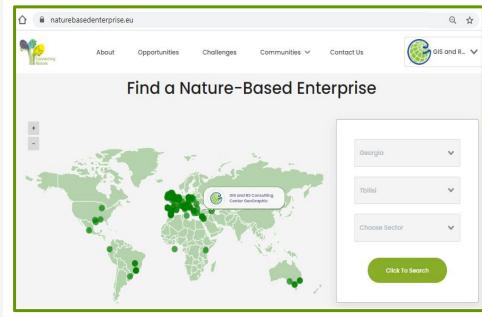
Strategic Environmental Assessment applied to spatial plans, prescribing nature-based solutions to address multiple ecological, environmental and social benefits through accelerated introduction of NBS into plans via SEA.

Market readiness level: Level 3: Fully tested and available on market

Contract type: Customised solution

Case study: SEA process was applied to assess the needs and to identify specific NBS actions, pilot schemes for implementation as part of the Lebarde Resort Development Spatial Plan, specifically to (i) develop urban green infrastructure using NBS; (ii) incorporate NBS into local context enhancing habitats and

## **Georgian geospatial company since 1998** Registered and several **products** offered at European Nature-Based Enterprise platform <u>http://NatureBasedEnterprise.EU</u>



connectingnature.eu/global



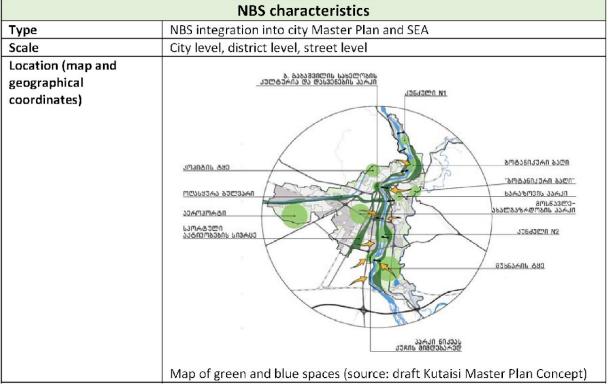
Connecting Nature Impact Assessment Framework

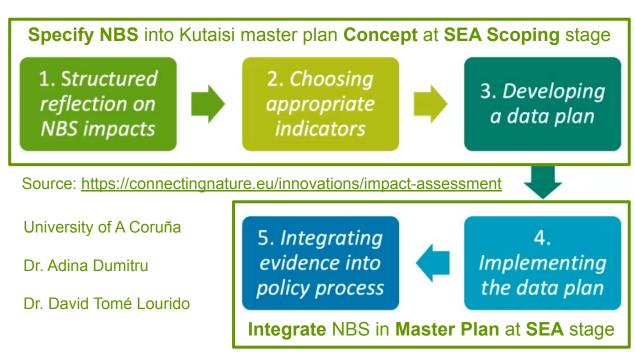
Connecting

#### NBS Impact Assessment for Kutaisi Master Plan SEA at Scoping

#### **Brief description of NBS measures**

City of Kutaisi (Georgia), with population about 147.5 thousand, at the order of its Mayor and elected City Council is engaged in land-use Master Plan preparation within the city boundaries, following the national planning legislation/code. The Environmental Assessment Code of Georgia, in harmonisation with European Strategic Environmental Assessment (SEA) Directive, requires such plans to be subjected to SEA. The contact was established on behalf of the Mayor with selected company GIS and RS Consulting Centre GeoGraphic to undertake the first planning stage, which includes the preparation of Master Plan Concept and undertaking SEA Environmental Scoping in the format of the Scoping Report, which together with the Concept will form the basis for the preparation of the Master Plan and SEA. These final planning documents would have to be prepared in the next stage by the company selected separately for the preparation of the Master Plan and its SEA. Master Plan Concept and SEA Scoping Report identify Nature Based Solutions (NBS) as necessary component of the Master Plan and SEA.





Process of design and	For the purposes of specification of particular Nature-Base Solutions the
implementation	NBS Impact Assessment Framework is applied, comprising of 5 building
	blocks and based on the most recent European methodologies. <sup>1</sup> Impact
	assessment framework is closely following the guidance and building block
	templates for elaborating the NBS evaluation and monitoring plan,
	specified for the implementation in Master Plan and its SEA, subject to
	submission and approval by Kutaisi City Council. Building blocks 1-3 are
	completed as part of the scoping process, while blocks 4 and 5 are to be
	implemented as part of the Master Plan and SEA.
Current deployment and	There are prerequisites in the Kutaisi for the implementation of basic NBS
deadline	measures, but planned efforts are indeed required to mainstreaming and
	implementation of NBS into realm of the city.
Financing and	The financing and stewardship are to be provide with own resources of
stewardship	Kutaisi, with support of funding institutions both international and
	national, public and private partnership initiatives, non-governmental
	organisations and last but not least, volunteers, city residents and public.





Proposed NBS relevant strategic objectives for Kutaisi and links with UN SDGs (green sign indicates Covid-99 safe objectives)

City's strategic objectives in NBS context		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Ó
Increase viable green and blue spaces and corridors, connectivity and public amenities			x			x					х		х		х			x
Increase biodiversity in urban spaces			x								х		х		х			х
Stimulate conservation in peri-urban and urban areas			x								х		х		х			х
Enhance peri-urban agriculture and stimulate urban agriculture		x	x		x			x			x	x	х		х			х
Prevent and/or reduce heat island effect and other impacts of climate change			x		x		x			х	x	х	х		х			х
Increase physical activity, recreation, cycling, walking, alternative mobility, grow foods		x	x		x					х	x	х	х					х
Stimulate energy efficiency and alternative energy solutions (biosolar)			x		x		x	х	x	х	x	х	х					х
Implement organic waste collection, composting and reuse systems		x						х			x	х			х			х
Brownfield utilisation, biodiversity enhancement and conversion	x		x		X			х	x	х	x	х	х		х		х	х
Vacant building utilisation with novel social and commercial functions	x		x		x			х	x	х	x	x						х
Noise reduction & air quality improvements (eg PM <sub>2.5</sub> ) via green spaces, walls, barriers			x		x			х	x	х	х		х		х			х
Stormwater reduction through NBS, rainwater harvesting and groundwater recharge						x	x		x	х	x	х	х		х			х
Piloting NBS wastewater systems such as constructed wetlands			х		x	х	x	х	x	х	x	х	х		х			х
Piloting and testing a range of NBS	х	х	x	x	х	х	x	х	x	х	х	х	х		х		х	х
Address climate change induced hazards such as flooding, erosion, landslides			x		х						х		х				х	х
Stimulate green economy though e.g. public-private NBS entrepreneurship initiatives	x			x	x			х	x	х	x	х					х	х
Pilot NBS in kindergartens, schools and higher education institutions (HEI)			x	x	x			х		х	x		х				х	х
Implement green public/private procurement including for NBS			x	x				х	x	1	х	х	х			х	2. 2.	х
Provide for pubic initiatives, volunteering and co-production in NBS interventions			x		х			х		х	х					х	х	х
Guidelines, tools and training for NBS implementation by public and private actors				x				х	x		х	х	х			х		х

1830 MW 18 81 13			
<u>https://sdgs.un.org/goals</u>	UN SDGs reference numbers:	6. Clean Water and Sanitation	12. Responsible Consumption and Production
	1. No poverty	7. Affordable and Clean Energy	13. Climate Action
	2. Zero hunger	8. Decent Work and Economic Growth	14. Life Below Water
	<ol><li>Good Health and wellbeing</li></ol>	9. Industry, Innovation and Infrastructure	15. Life on Land
	4. Quality Education	10. Reduced Inequality	16. Peace and Justice Strong Institutions
	5. Gender Equality	11. Sustainable Cities and Communities	17. Partnerships to achieve the Goal

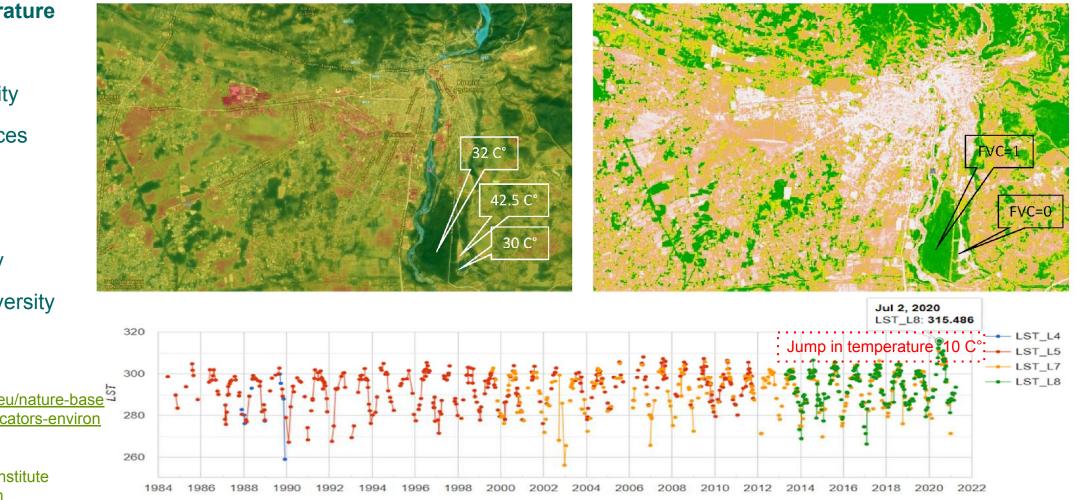
### **Core NBS Environmental Indicators** Remote observations





LST – Land Surface Temperature

Kutaisi, Georgia



**Figure 1.** (a) Land Surface Temperature (LST), (b) Fractional Vegetation Cover (FVC) and (c) LST time series at 42.5 C° point in Kutaisi, Georgia. Note significant (>10°) uptick of LST to 315.5 K° (42.5 C°) in 2021 due to major wetland clearance (source: (a) and (b) Landsat 2020.07.02 and (c) Landsat 4, 5, 7, 8, observation period 1982.08.01-2021.04.21, observation location Lat 42.208664 Lon 42.714204) (see Ermida et al. 2020)<sup>3</sup>

**Env 03 Air temperature** 

Env 09 Flooding

Env 15 Water quality

Env 23 Green spaces

Env 24 Recreation

Env 25 Cultural

Env 29 Biodiversity

### Env 35 Species diversity

•••

Source:

https://connectingnature.eu/nature-base d-solution-evaluation-indicators-environ mental-indicators-review Dr. Stuart Connop Sustainability Research Institute University of East London

<sup>&</sup>lt;sup>3</sup> Remote Sensing | Free Full-Text | Google Earth Engine Open-Source Code for Land Surface Temperature Estimation from the Landsat Series | HTML (mdpi.com)

### **Core NBS Environmental Indicators**

Remote observations

- Env 03 Air temperature
- Env 09 Flooding
- Env 15 Water quality

### Env 23 Green spaces

Env 24 Recreation

Env 25 Cultural

Env 29 Biodiversity

Env 35 Species diversity

•••

## Source:

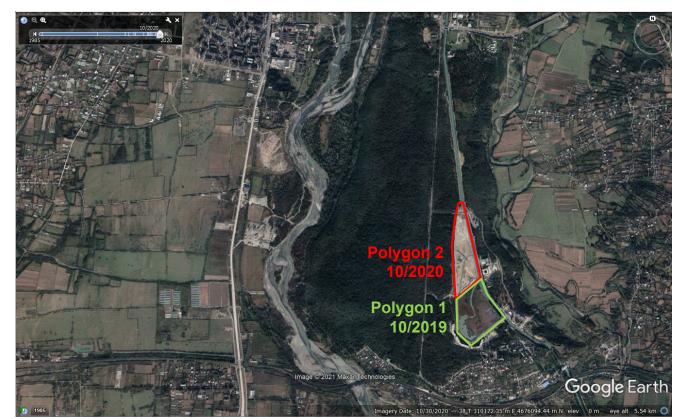
https://connectingnature.eu/nature-base d-solution-evaluation-indicators-environ mental-indicators-review Dr. Stuart Connop Sustainability Research Institute University of East London

## Tool applied: <u>http://ClimateEngine.org</u>





**FLC – Fractional Vegetation Cover** Kutaisi, Georgia







## Connecting Nature Impact Assessment Framework



## View from Bagrati Church Kutaisi Georgia









# UrbanByNature

The Global Programme for Urban Nature Pioneers

## Mamuka Gvilava

Environmental Sustainability Expert GIS & RS Consulting Center GeoGraphic Tbilisi, Georgia <u>mgvilava@geographic.ge</u>

## **Thank You!**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730222.