



# 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.

### Currently displaying 3 products/services



#### GIS for urban revitalisation

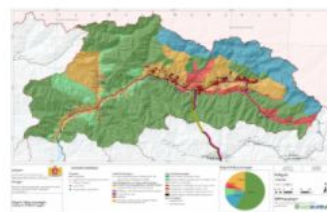
##### Description of product

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 spatial-functional, 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 entire Georgia and



#### Integrate NBS into Spatial Plan

##### Description of product

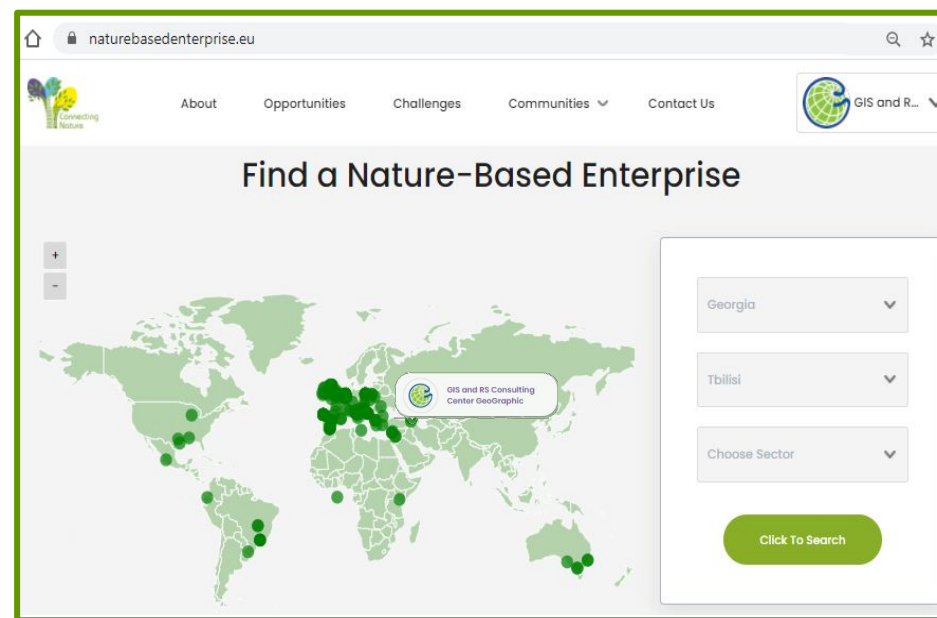
Strategic Environmental Assessment applied to spatial plans, prescribing nature-based solutions to address multiple ecological, environmental and social benefits through accelerated introduction of NBS into plans via SEA.

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  
<http://NatureBasedEnterprise.EU>







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

<https://sdgs.un.org/goals>

**UN SDGs reference numbers:**

1. No poverty
2. Zero hunger
3. Good Health and wellbeing
4. Quality Education
5. Gender Equality

6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation and Infrastructure
10. Reduced Inequality
11. Sustainable Cities and Communities

12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life on Land
16. Peace and Justice Strong Institutions
17. Partnerships to achieve the Goal



Env 03 Air temperature

Env 09 Flooding

Env 15 Water quality

Env 23 Green spaces

Env 24 Recreation

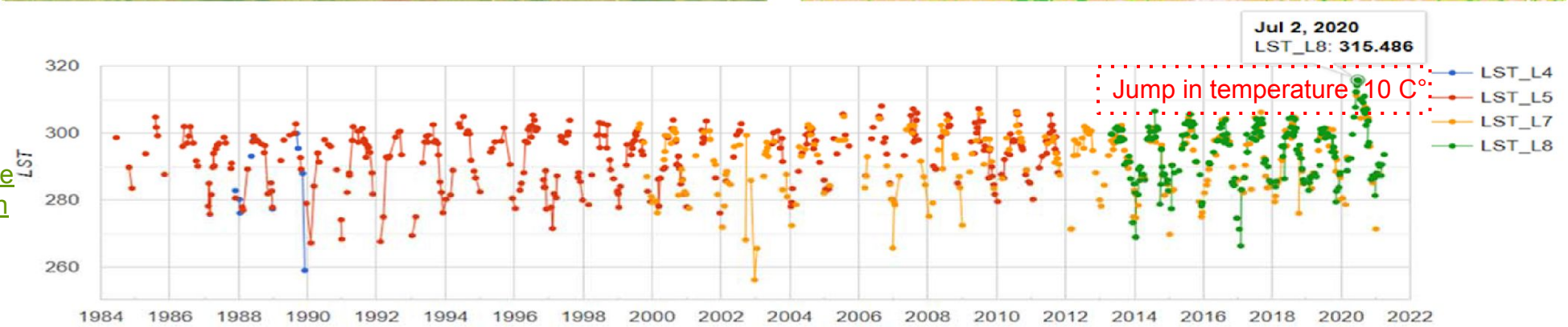
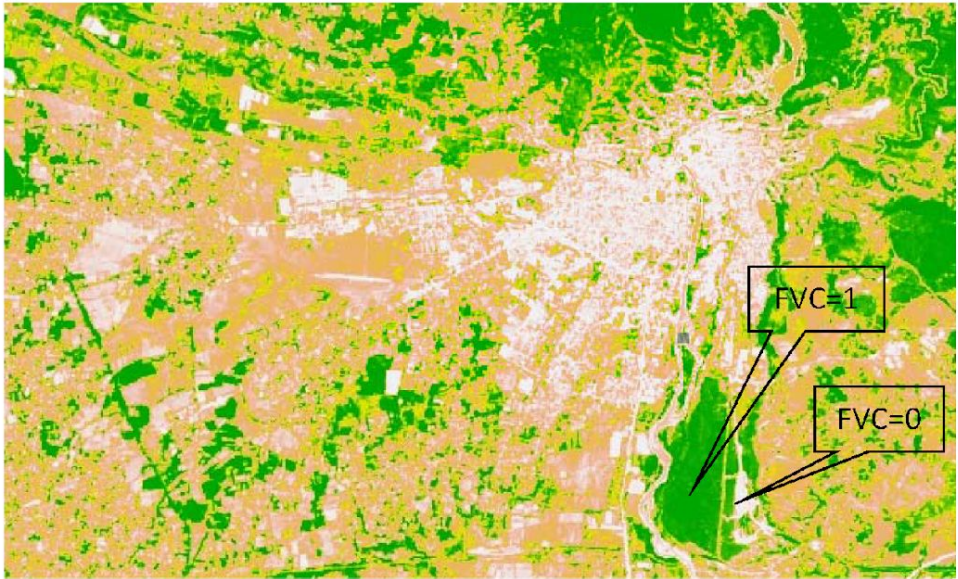
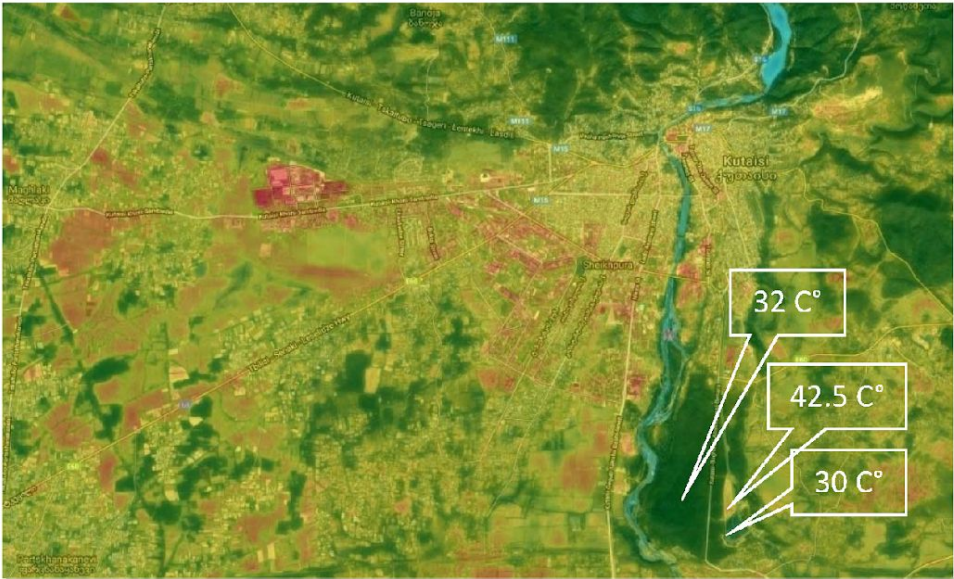
Env 25 Cultural

Env 29 Biodiversity

Env 35 Species diversity

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Source:  
<https://connectingnature.eu/nature-based-solution-evaluation-indicators-environmental-indicators-review>  
Dr. Stuart Connop  
Sustainability Research Institute  
University of East London



**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>

<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

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Env 25 Cultural

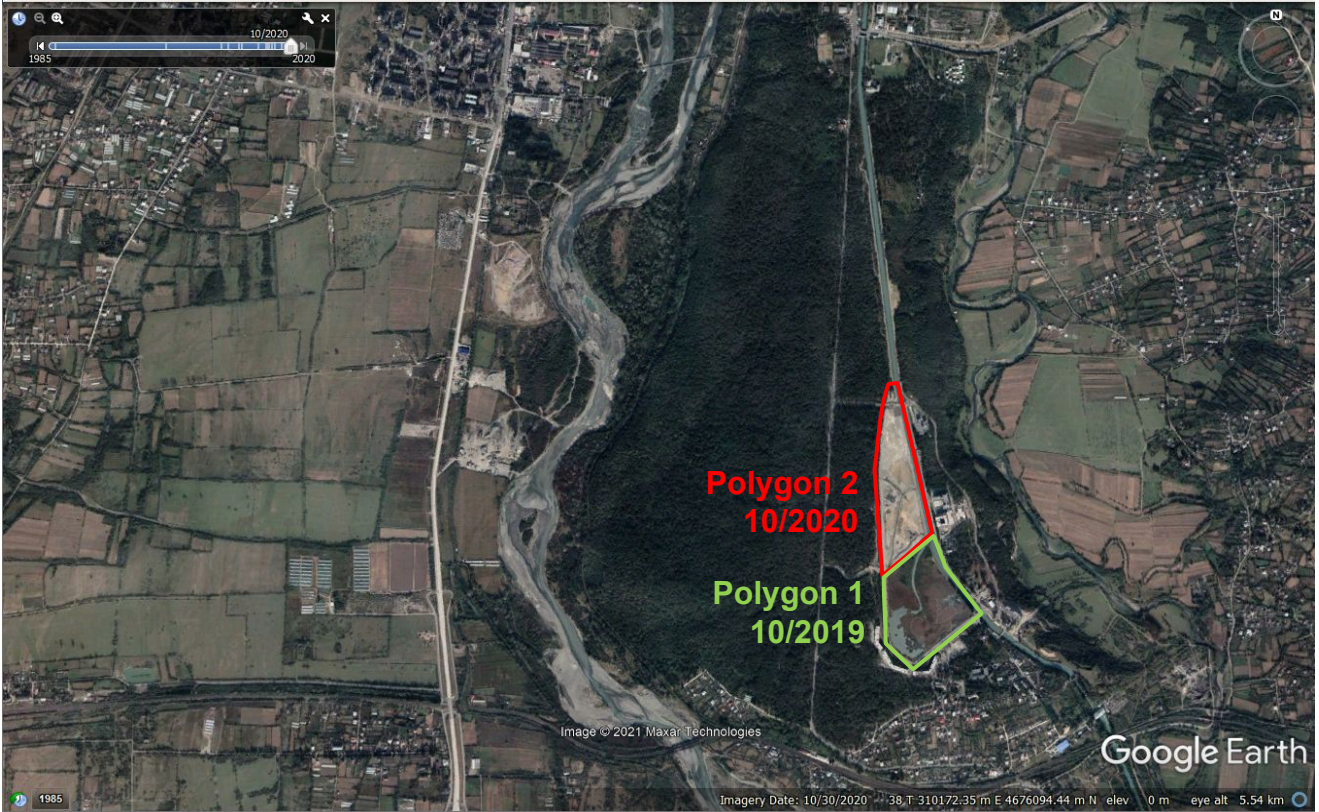
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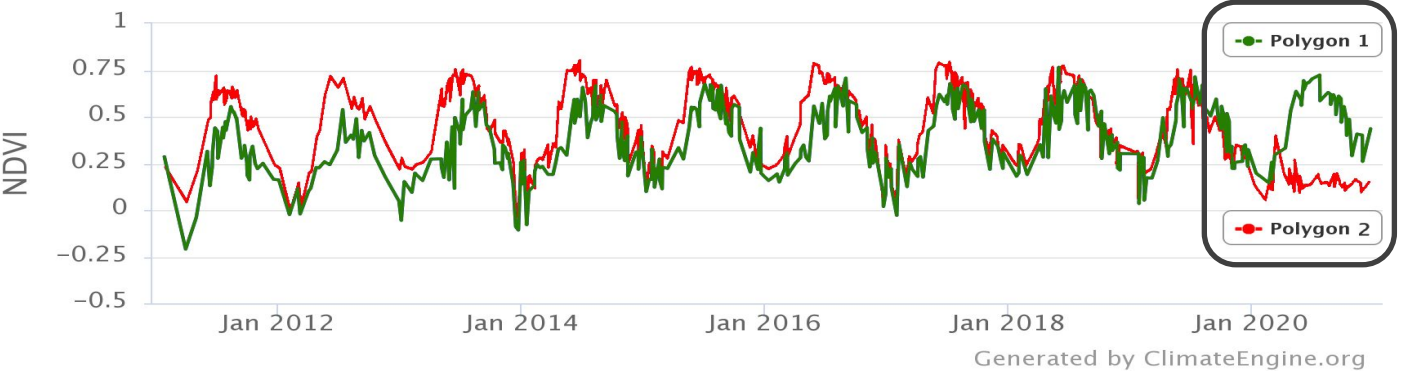
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FLC – Fractional Vegetation Cover  
Kutaisi, Georgia



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

NDVI (Landsat 4/5/7/8 SR)







# View from Bagrati Church Kutaisi Georgia





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## Thank You!



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