

Nature Based Solutions

Challenges of a community's path from grey to green

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REGIONI TRA SFIDE E OPPORTUNITÀ INATTESE

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SAPIENZA
UNIVERSITÀ DI ROMA

Nature Based Solutions: definition

NBS are deliberate interventions that are **inspired or supported by nature**.

They can provide **environmental, social and economic benefits** while also helping to build **resilience**.

(Naturvation, 2017-2020)

NBS Categories

Green roofs
Green walls or facades
Balcony green
Alley and street trees/hedges/greens
Railroad bank and

House gardens
Green playground/school grounds
Institutional green space
Green parking lots
Riverbank greens
Large urban park or forest

Pocket parks / neighbourhood green spaces
Botanical garden
Green corridor
Allotments
Community gardens
Horticulture
Indoor vertical greeneries (walls and ceilings)

Sustainability Goals for NBS

1	Climate Action for adaptation, resilience and mitigation
2	Water Management
3	Coastal resilience and marine protection
4	Green Space, habitats and biodiversity
5	Environmental quality, including air quality and waste management
6	Regeneration, land-use and urban development
7	Inclusive and effective governance
8	Social justice, inequality and social cohesion
9	Health and wellbeing
10	Economic development and decent employment
11	Cultural Heritage and Cultural Diversity
12	Sustainable consumption and production

Impacts: Ecosystems Services delivered

- 1) 87% claimed to deliver some type of **cultural services**;
 - 2) 69% **regulating services**;
 - 3) 31% **provisioning services**.
- Environmental, social and economic impacts often included green space, habitats and biodiversity; health and wellbeing benefits.
 - 90% of all **NBS intended** to deliver benefits to citizens at large or community groups, but also public bodies.

(Naturvation 2017 - 2020)

Role and form of NBS in planning process and tools: questions

- Which impact of NBS in urban policies and plans?
- NBS: strategy, vision or plan ? Or NBS as tools for planning ?
- NBS place in policy & planning: urban policy (scale)?, general strategy? thematic plan or programme? local plans? guide lines? design catalogue as a «pattern language» of NBS solutions?
- NBS and participation: which methodologies to introduce NBS in the planning process (training, learning, gaming, ..) and help people (from stakeholder to resident) to facilitate their use?

Pilot case. Regeneration Green Process in San Lorenzo Neighbourhood in Rome

- The scale for NBS test: neighbourhood
- Tools:
 - light local green plan / framework (Bruxelles, Utrecht);
 - small fast actions (Paris);
 - stakeholder & community driven;
 - «NBS Pattern Language» to help people to become NBS user friendly.
- 5 Steps:
 1. Build a methodology
 2. Citizen engagement
 3. Training and Test
 4. Make it real
 5. Reply



Methodology


0. References
1. Build commitment with institutional actors
2. Involve local communities
3. Implement a Knowledge Portfolio
4. Shape a common vision
5. Find the places: «neighbourhood voids» (Jane's walk)
6. Implement an open «NBS Pattern Language»
7. Sketch and share possible changes
8. Make it real (if possible) and measure

Biennale Spazio Pubblico 2017 Sapienza Università di Roma - Facoltà di Ingegneria Civile e Industriale - DICEA Corso di Laurea Ingegneria Edile - Architettura UE

San Lorenzo Green Network

Idee per il progetto... passeggiando

mercoledì 29 marzo dalle ore 11:00 alle ore 17:30



PROGRAMMA

ore 11 - Passeggiata esplorativa con la IB della scuola media G. Borsi
Partenza dalla scuola media in via Tiburtina Antica 25
La passeggiata percorrerà l'itinerario del Green Network con il collettivo artistico Polisonum che coinvolgerà i bambini in una esplorazione acustica sulle note di una soundscape composition.

ore 12 - Approfondimento metaprogettuale sul mapping
Gli studenti del corso di Urbanistica II della Sapienza guideranno gli studenti della IB nell'analisi delle problematiche e delle criticità del quartiere, elaborando le idee di progetto.

ore 15 - Lezione "Boschi verticali e tetti verdi" alla Casa della Partecipazione
via dei Sabelli 88a
I professori Roberto Casalini e Antonio Vestrella terranno una lezione sulla progettazione di tetti e pareti verdi, con la proiezione del video che illustra la realizzazione del tetto verde sulla copertura del liceo scientifico Keplero di Roma.
Saranno presenti le docenti e gli studenti del corso di Urbanistica II, le mamme de La Gru, i Polisonum, le professoresse della scuola media e gli alunni della IB.
Sono invitate a partecipare le famiglie degli studenti della IB

ore 16:30 - Passeggiata con l'associazione di cittadini La Gru
La passeggiata percorrerà l'itinerario del Green Network con le mamme e i bambini de La Gru, con particolare attenzione alle proposte progettuali elaborate dall'associazione, insieme ai Polisonum.



1. Build commitment with institutional actors

2. Involve local communities & stakeholders



- «Greening Municipio II» Sapienza – Municipio II Agreement (2015);
- «Green Infrastructure Municipio II» Sapienza multidisciplinary research (2016);
- «Mapping San Lorenzo» Istituto Comprensivo Tiburtina Antica – Borsi (2016);
- Green Innovative Digital Oasis (H2020 proposal with Municipality of Rome – 2019);
- «Green Agenda Municipio II» (2019).

Scientific coord. Prof. Fabiola Fratini

- Libera Repubblica San Lorenzo (2016)
- GRU (2017)
- Comitato di Quartiere (2018)
- Libera Repubblica di San Lorenzo (2019)

3. Implement knowledge portfolio

- ANALYSIS OF LOCAL PLANNING TOOLS: PPT Lazio, PRG Roma, Progetto Urbano San Lorenzo
- ECO-QUALITY index
- WALKABILITY index
- BIOTOPE AREA FACTOR (BAF)
- PERCEPTUAL ANALYSIS (Lynch, Gehl)

4. Shape a common vision

The Green Networks, GRU association and University students' proposal



The potential Oases and Green Links through walking workshops (Jane's Walk) and digital tools (Carticipe)

The map illustrates the Verano area in Rome, highlighting a specific path and key locations. The path, marked by a dashed green line, connects several points of interest, each indicated by a green circle. These locations include Piazzale del Verano, Area dei Marmisti, Viale del Verano, Parco dei Galli, Largo Passamonti, Bosco Temporaneo, Borghetto dei Lucani, Mercato, Via dei Sabelli, Piazza Sanniti, Villa Mercedes biblioteca, and Parco lineare Mura Aureliane. The map also shows various landmarks such as the Hotel Felice Roma, Hotel Laura Roma, and the Università Degli Studi La Sapienza. The background is a light gray map with street names and building footprints.

6. Implement an open NBS «Pattern Language»

Green



Recycling



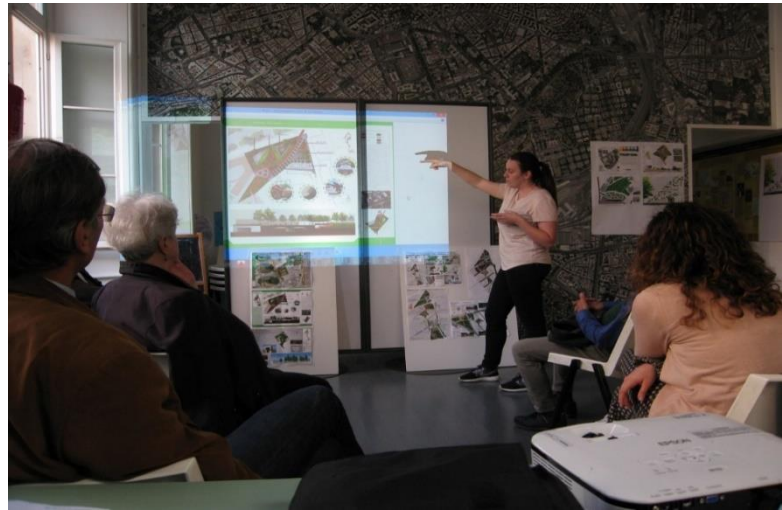
Community Self-built



Sustaina bility	Well- being	Innovative	Social	Cultural	Digital	Multi functional	Safe	Inclusive	Accessible
★	★	★	★	★	★		★	★	★
★		★	★	★		★	★	★	★
★	★		★	★	★	★	★	★	★

7. Sketch and share possible change

Design Green Oases within a participated process



7. Sketch and share possible change

Design temporary green links: San Lorenzo Parklets



TEMATIZZAZIONI E VALUTAZIONE LABEL

ECOLABEL	CONVIVIALITY LABEL	INCLUSIVITY LABEL	EASY-TO-DO LABEL
Materiali riciclabili utilizzati:2	Numero di sedute:3	Spazi accessibili per disabili :3	Facilità di reperibilità del materiale:3
Presenza di "stazione compostaggio":3	Numero tavoli:1	Spazi accessibili per non vedenti:3	Tempi brevi di realizzazione:2
Presenza di un contenitore per la raccolta dell'acqua:0	Giochi collettivi :3	Spazi accessibili per anziani :3	Facilità di montaggio:1
Presenza alberature:1	Attrezzature per lo sport:0	Spazi accessibili per bambini:3	Spazio per la realizzazione:2
Vegetazione e permeabilità:3		Arredi utilizzabili da persone di tutte le età o arredi per tutte le età:3	
Plastic free :1			
Impiego di vernici capaci di assorbire la CO2 :3			
Vernici catalitiche : 0			
Presenza di volontari per la cura dello spazio:3			
PUNTEGGIO FINALE OTTENUTO: 16	PUNTEGGIO FINALE OTTENUTO: 7	PUNTEGGIO FINALE OTTENUTO:15	PUNTEGGIO FINALE OTTENUTO:8
PUNTEGGIO TOTALE:46			



8. Make it real (if possible) and measure

BOSCO TEMPORANEO 2017



BORGHETTO DEI LUCANI REGENERATION 2019



GREEN PARKLETS
(2020?)
THE PLACE OF
TREE
(Borghetto dei Lucani
2020?)

FOUR CORE PRINCIPLES TO ASSESS THE EXPERIMENTATION/ PROCESS :
+ Multi-scale, Multiobject, Inter and transdisciplinary, PPP (Green Surge 2017)

The ONE HUNDRED TREES «Bosco Temporaneo San Lorenzo» with Presidenza della Repubblica donation

1. GREEN GREY INTEGRATION 

2. CONNECTIVITY

3. MULTIFUNCTIONALITY 

4. SOCIAL INCLUSION,
PARTICIPATION



5. MULTI-SCALE

6. MULTI-OBJECT 

7. INTER AND
TRANSDISCIPLINARITY 

8. Public Private Partnership (PPP) 



From Temporary to definitive: one hundred trees diaspora through Municipio II



CONNECTIVITY ✓ SOCIAL INCLUSION ✓ PARTICIPATION ✓ MULTI-SCALE ✓

BORGHETTO DEI LUCANI REGENERATION

Proposal

1. GREEN GREY INTEGRATION 

2. CONNECTIVITY

3. MULTIFUNCTIONALITY 

4. SOCIAL INCLUSION,
PARTICIPATION 

5. MULTI-SCALE

6. MULTI-OBJECT 

7. INTER AND
TRANSDISCIPLINARITY 

8. Public Private Partnership

3. The NBS-oriented approach of “Cantieri del Possibile” with “green invariants” shared by the 3 scenarios proposed

4. Shift in the involvement of the community, producing a series of fertile think thanks and co-design workshops within the “green board”

3. 6. Hydroponic farm, swimming pool, tree square, sensitive garden, orchard, playgrounds

7. NBS and Welfare activities shared tools and spaces

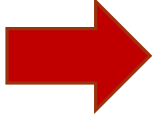
8. The partnership requested by the competition was’nt considered by the proposal

BORGHETTO DEI LUCANI REGENERATION

NBS «Pattern Language» and the 3 scenari



...

-
- Make sustainability a political issue
 - Define a real commitment with local Government
 - Open the community: propose a broad federation of “green communities”
 - Enhance the climate change and green awareness through Citizen Science experimentations
- 
- Find links with close neighbourhoods to support common shared green actions
 - Learn by achieved experiences in other neighbourhoods
 - Include schoolchildren in the process
 - Support multistakeholder initiatives (temporary or...)

THANK YOU



References

- Davies, C., & Laforteza, R. (2019). Transitional path to the adoption of nature-based solutions. *Land Use Policy*, 80.
- Ehrlich, P., & Ehrlich, A. (1981). *Extinction: The Causes and Consequences of the Disappearance of Species*. New York: Random House.
- MEA. (2005). *Ecosystems and Human Well-Being: Current State and Trends*. Washington: Island press.
- The Economics of Ecosystems and Biodiversity. (2010). *Mainstreaming the Economics of Nature. The Economics of Ecosystems and Biodiversity*.
- Diaz, S., Pascual, M., Stenseke, M., Martín-López, B., Watson, R., Molnár, Z., . . . Shirayama, Y. (2018). Assessing nature's contributions to people. *Science*, 359.
- European Commission. (2009). White paper. Adapting to climate change: Towards a European framework for action. COM(2009) 147/4. Brussels.
- European Commission. (2011). *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*. Brussels.
- European Commission. (2013). *Green Infrastructure (GI) – Enhancing Europe's natural capital*. COM (2013) 249 final.
- European Commission. (2015). *Towards An EU Research and Innovation Policy Agenda for Nature-Based Solutions & Re-Naturing Cities*. Final Report of the Horizon 2020 Expert Group on 'Nature-Based Solutions and Re-Naturing Cities'. Brussels: Directorate - General for Research and Innovation.
- Hansen, R., & Pauleit, S. (2014). From Multifunctionality to Multiple Ecosystem Services? A Conceptual Framework for Multifunctionality in Green Infrastructure Planning for Urban Areas. *AMBIO*.
- Cohen-Shacham, E., Walters, G., Janzen, C., & Maginnis, S. (2016). *Nature-Based Solutions to Address Global Societal Challenges*. Gland, Switzerland: IUCN.
- Allmond, G. (2017). The First Garden City? Environment and utopianism in an Edwardian institution for the insane poor. *Journal of Historical Geography*, 56.
- Ward Thompson, C. (2011). Linking landscape and health: The recurring theme. *Landscape and Urban Planning*, 99.
- Seiwert, A., & Röbber, S. (2020). Understanding the term green infrastructure: origins, rationales, semantic content and purposes as well as its relevance for application in spatial planning. *Land Use Policy*, 97.
- Frantzeskaki, N., Vandergert, P., Connop, S., Schipper, K., Zwierzchowski, I., Colliere, M., & Lodder, M. (2020). Examining the policy needs for implementing nature-based solutions in cities: Findings from city-wide transdisciplinary experiences in Glasgow (UK), Genk (Belgium) and Poznań (Poland). *Land Use Policy*, 96.
- Dewey, J. (1916/1997). *Democracy and Education. An Introduction Into the Philosophy of Education*. New York: The Free Press.
- Fratini, F. (2020). *Oasi Verdi a San Lorenzo. La rigenerazione a piccoli passi*. CRIOS(19).
- Buijs, A., Mattijssen, T., Van der Jagt, A., Ambrose-Oji, B., Andersson, E., Elands, B., & Steen Møller, M. (2016). Active citizenship for urban green infrastructure: fostering the diversity and dynamics of citizen contributions through mosaic governance. *Environmental Sustainability*.
- Kipar, A., & Sala, G. (2014). *Raggi verdi. Green Vision for Milano 2015*.