

Index

- Identification of Priority Intervention Zones
- Learning from the community and The Framework
- 5 Spatial Typologies for Climate Resilience in Spinaceto
- Multi-stage Growth Strategy in Spinaceto
- Green Infrastructure + Stormwater Management System
- Urban Comfort Public Spaces and Phasing Plan
- Adaptive Community-Led Regeneration Process

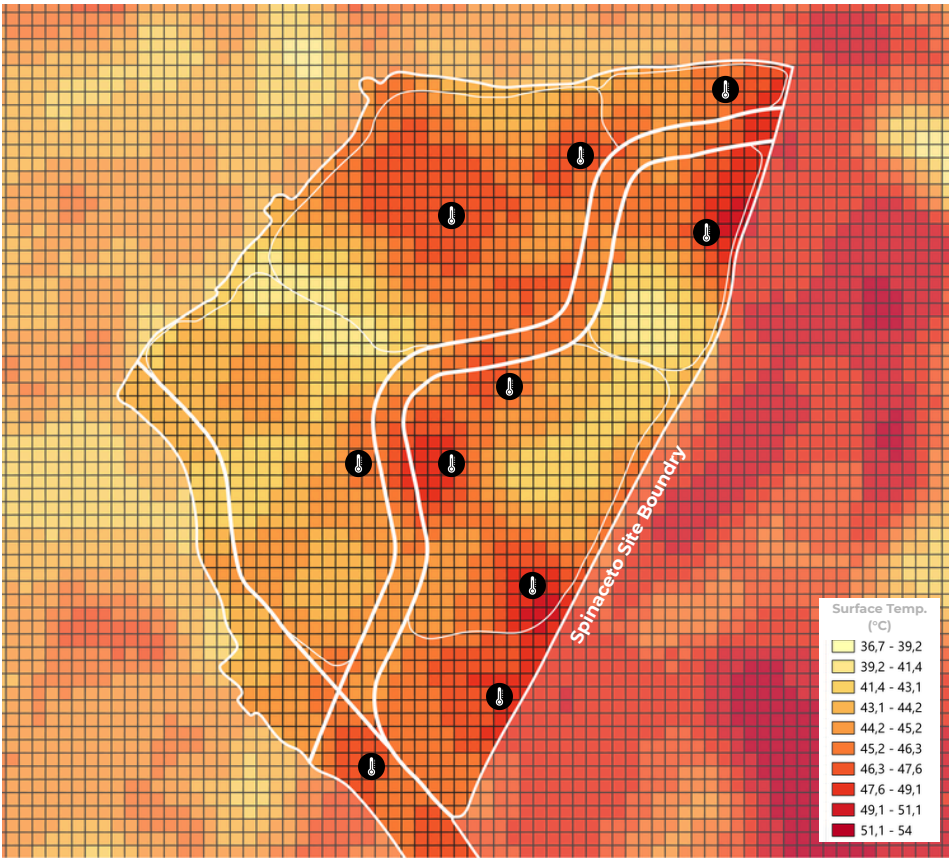
SPINACETO ■■■■

Transforming urban spaces through green infrastructure, climate resilience, and community-centered design.

Team ScriptScape

From data to design -Identification of Priority Intervention Zones

These multi-layered spatial analyses aim to identify the relationship between urban form (Soil Sealing), ecological health (NDVI), and climatic impact (LST). By cross-referencing these datasets, we pinpoint specific 'Priority Intervention Zones' where micro-climatic stress is highest and green connectivity is weakest.

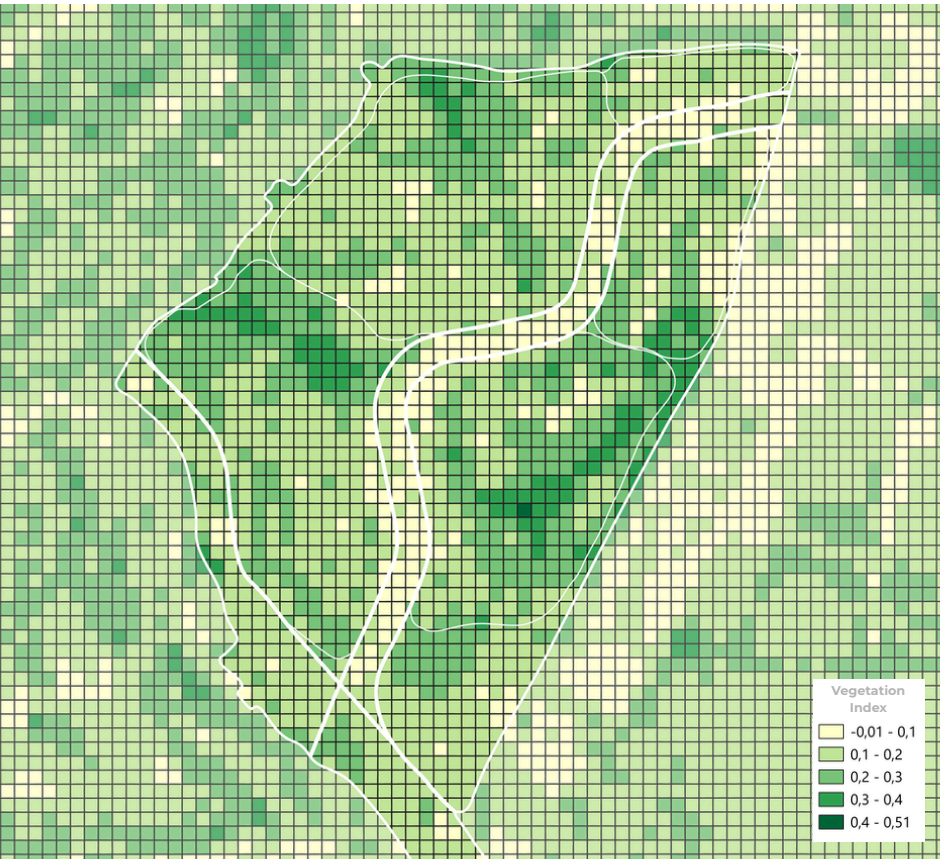


Methodology: Spatial analysis conducted via QGIS Zonal Statistics, derived from Landsat 8-9 OLI/TIRS satellite imagery (30m resolution, pan-sharpened to grid). Data represents peak summer conditions (June-August) to capture maximum thermal stress and vegetation health.

LST-Urban Heat Distribution-Heat Corridors

Surface temperatures concentrate along mobility corridors and hardscaped areas, forming continuous heat lines across the neighbourhood. These areas represent priority zones for climate adaptation interventions, including cooling strategies and nature-based solutions.

Heat hotspots



NDVI-Vegetation Distribution-Fragmented Green Structure

The NDVI analysis quantifies the radical ecological disparity between the Parco Campagna and the fragmented green spaces of Spinaceto. **The vegetation is present but fragmented**, failing to operate as a continuous ecological system. This condition highlights the need to connect isolated green patches into a continuous ecological network linking Parco Campagna to the neighbourhood.



0.66 - 1.0: Very healthy / Dense vegetation



0.33 - 0.66: Moderately healthy



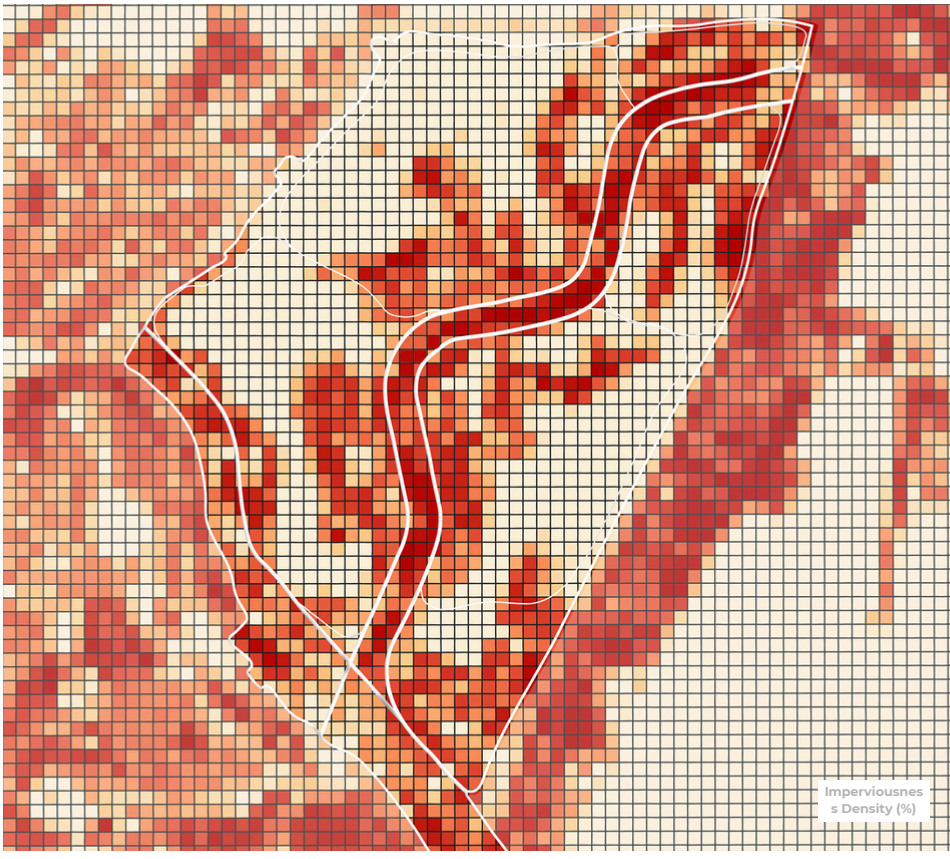
0.0 - 0.33: Unhealthy plant / Sparse green



-1.0 - 0.0: Dead plant or hardscape

What NDVI tell us about plants?

Connecting Urban Fragments and Community



Soil Sealing & Land Imperviousness - Urban Hardscape Density

The high density of impervious surfaces within the site boundary directly correlates with the urban heat island effect, as these materials prevent natural cooling through evaporation and increase stormwater runoff. **Identifying these "sealed" zones is critical for placing permeable nature-based solutions and de-paving interventions.**

"The effectiveness of nature-based solutions depends on their strategic placement within areas of highest climatic stress."



KEY ISSUE

Spinaceto currently suffers from fragmented green systems, overheated hardscape surfaces, underused public spaces, and weak ecological continuity between neighbourhood zones and Parco Campagna.

Environmental analyses revealed significant urban heat island effects and showed us existing green areas function as isolated patches rather than an integrated ecological system.

At the social scale, many open spaces lack active community use, climatic comfort, and intergenerational interaction. Several public areas remain mono-functional, poorly shaded, or disconnected from everyday neighbourhood life.

The strategy moves beyond rigid masterplanning by establishing an adaptive socio-ecological framework rooted in spatial/environmental analysis and community-based observations. Rather than defining fixed future programs, the project creates conditions for gradual ecological and social transformation **through interconnected catalyst nodes and evolving public-space systems.**

Step 1: Spatial & Social Diagnosis (The Input)

Layered zonal analyses (including NDVI, LST, permeability, fragmented green systems, and pedestrian connectivity) were combined with local community observations and feedback to identify overheated surfaces, ecological gaps, underused public spaces, and vulnerable neighbourhood nodes.

Step 2: School-Centric Activation (The Seed)

The transformation begins through local schools as the first catalyst nodes. Schools were selected because they already function as everyday socio-civic anchors, allowing ecological awareness, intergenerational participation, and pilot climate-responsive interventions to emerge through existing community networks in a safe and accessible environment.

Step 3: Evolutionary Scaling (The Grow & The Root)

Starting from the school-based pilot interventions, the framework gradually expands into the wider neighbourhood through adaptive ecological connections, shaded mobility systems, integrated public spaces, stormwater landscapes, and community-supported productive environments. The process remains incremental and flexible, allowing the neighbourhood to evolve over time through environmental performance and collective stewardship

WATER SENSITIVE SYSTEMS

- Bioswale strip
- Rainwater Harvesting
- Permeable pavement
- Rain garden

ECOLOGICAL REGENERATION

- Green Space Expansion
- Shading Tree Canopy
- Community-led planting areas
- Micro-forestation

CIRCULAR COMMUNITY SYSTEMS

- Organic Waste Composting
- Communal farming

SOCIAL VALUE

- Multifunctional Public Space
- Climate-integrated parks
- Shaded seating

MOBILITY

- Pedestrian routes
- Dedicated cycling route

Based on our strategical framework, 5 main spatial typologies were emerged. They function as an adaptive catalog where each spatial type structurally feeds, supports the next. By prioritizing this systemic symbiosis, the project transforms underperforming urban fragments into a collaborative network that can fluidly evolve alongside the community's future needs.



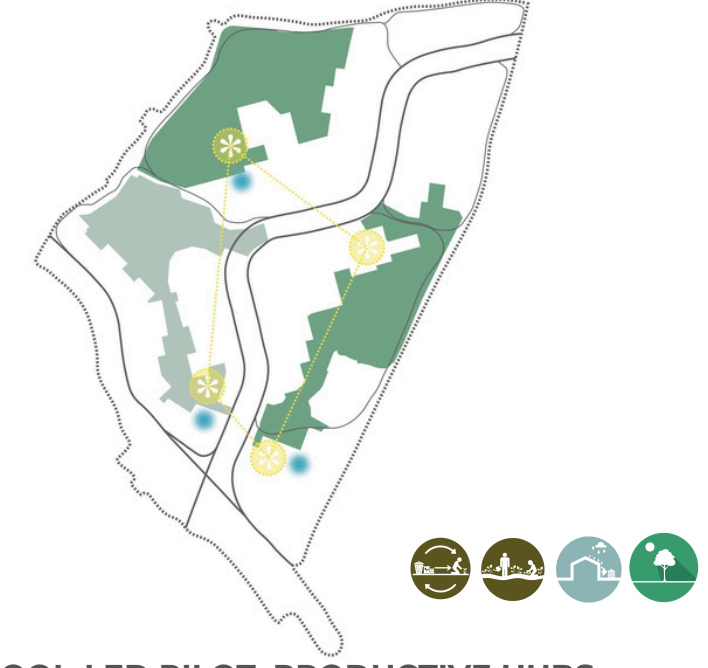
- 3 INTEGRATED PARKS-MULTIFUNCTIONAL NODES**
Existing parks and open hardscapes are transformed into multi-programmatic community spaces designed for daily interaction across all age groups



- 1 NEIGHBORHOOD ZONAL LINK**
A network of green, cooling ecological corridors with nodal interventions based on analysis, links neighbourhood into a unified system act as daily ecological movement network



- 4 MICRO-FOREST+DE-PAVING**
Existing green patches are enhanced through planting. Selected parking areas undergo partial de-paving, replacing impervious surfaces with permeable paving



- 2 SCHOOL-LED PILOT: PRODUCTIVE HUBS**
School grounds become the first catalyst for community transformation. Function as pilot centers for urban farming, composting, and environmental education



- 5 SHADED MOBILITY CORRIDORS**
Internal climate-responsive mobility corridors are redesigned as low-speed routes integrating tree canopy, bioswale drainage strips, and dedicated cycling infrastructure



01 The Seed: Community-Led Ecological Awakening

PHASE 01 - COMMUNITY SEEDING

The transformation begins through small-scale, community-led pilot actions centered around schools. Initial actions focus on school-led urban gardening, composting, and environmental education programs, transforming schools into local catalysts for ecological awareness and social participation. Through the gradual involvement of children, families, elderly residents, and local organizations, these initiatives aim to build mutual trust, collective stewardship, and long-term community ownership.

The first pilot spaces establish the foundation for a broader neighbourhood-wide resilience network that can progressively expand across Spinaceto.

Key actions:

- 1 School-led urban gardening and composting pilots
- 2 Temporary tactical interventions and community planting days
- 3 Educational signage and ecological awareness programs
- 4 Small-scale rainwater harvesting systems in schools
- 5 Initial shaded seating and gathering spaces
- 6 Pilot communal gardening areas
- 7 Initial ecological corridor extending from Parco Campagna into the neighbourhood connecting pilot schools and community spaces

Main objective:

Building ecological awareness, participation, and stewardship culture.





02 The Grow: Neighbourhood Spatial Transformation

PHASE 02 - NEIGHBOURHOOD ECOLOGICAL EXPANSION

From Local Activation to Spatial Transformation

As participation grows, ecological interventions expand into the wider neighbourhood. Existing parks, open spaces, and fragmented green patches are gradually connected through integrated park systems, selective de-paving, community planting areas, and climate-responsive public spaces.

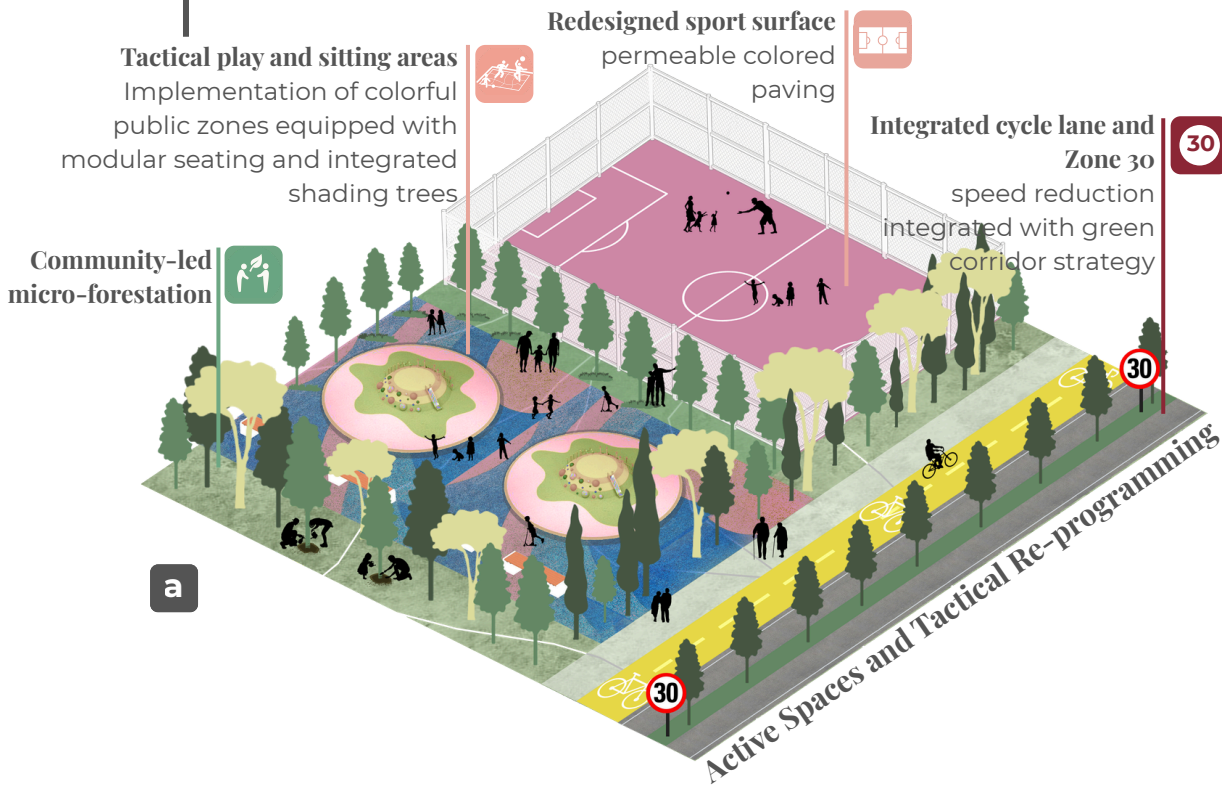
The municipality and local stakeholders begin supporting larger-scale ecological improvements while maintaining community involvement.

Key actions:

- 1 Transformation of selected open spaces into integrated multifunctional parks
- 2 Partial de-paving at selected hardscape areas
- 3 Expansion of tree canopy and shaded pedestrian/cycling routes
- 4 Community-led planting areas and pocket parks
- 5 Pilot rain gardens, bioswales, and permeable surfaces
- 6 Revitalization of underperforming and fragmented green areas
- 7 Expansion of cycling and pedestrian ecological routes

Main objective:

Strengthening ecological continuity while expanding community-supported public infrastructure.



This axonometric view illustrates the transformation of an existing sport field identified as a critical urban heat island node through LST thermal analysis.

The intervention redesigns the space as a multifunctional integrated park. The playing surface is repaved with permeable coloured material. Surrounding hardscape is replaced with organic play and gathering areas defined through painted pavement with partial de-paving. A dedicated cycling lane and Zone 30 speed reduction are integrated along the adjacent street, connecting the site to the wider slow mobility and green corridor network.



03 The Root: Integrated Resilience Framework

PHASE 03 - INTEGRATED RESILIENCE NETWORK

Establishing a Long-Term Ecological Framework

The final phase consolidates the neighbourhood into a connected climate-resilient ecological network. Fragmented landscapes are stitched together through continuous green corridors, mature canopy systems, and long-term ecological stewardship strategies supported by public institutions and local communities.

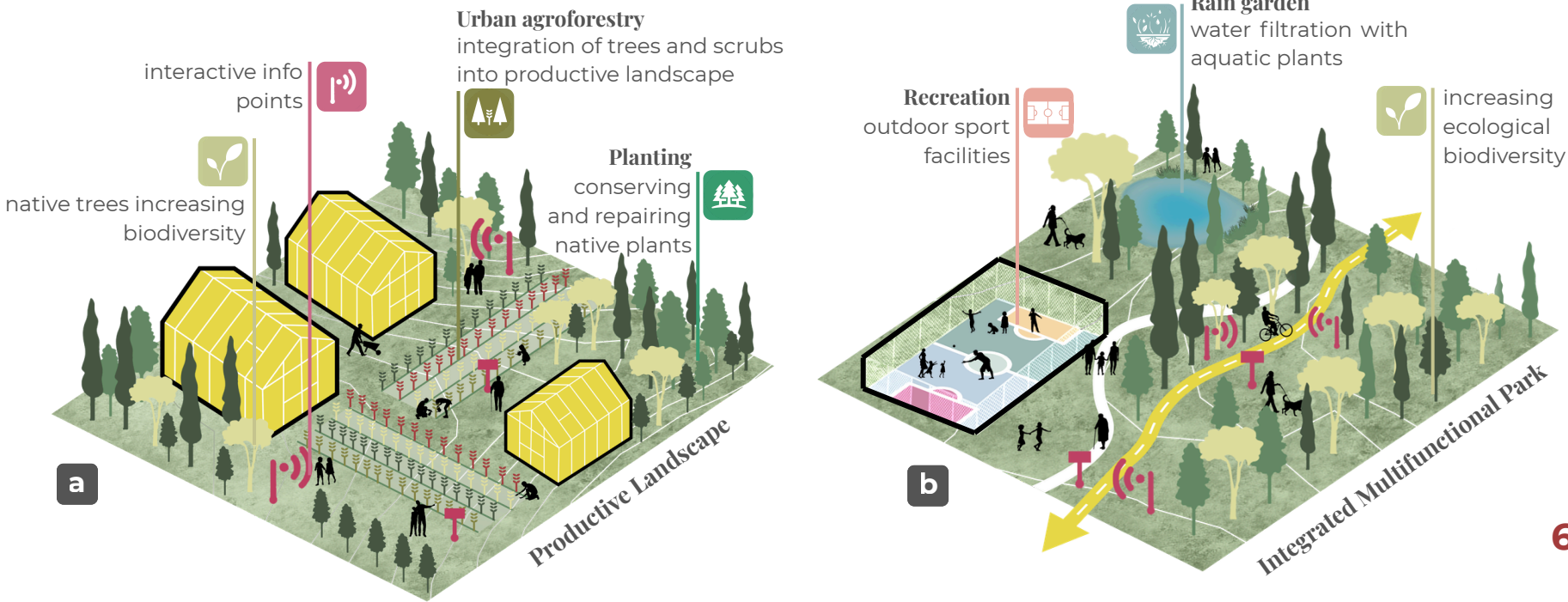
Pilot initiatives evolve into a broader territorial resilience framework integrating biodiversity, stormwater management, cooling infrastructure, and productive landscapes.

Key actions:

- 1 Continuous ecological corridor and park-link system
- 2 Mature canopy network and cooling corridors
- 3 Urban agroforestry buffer proposals along neighbourhood edges
- 4 Seasonal eco-markets and community ecological events
- 5 Long-term stewardship and maintenance partnerships
- 6 Integrated stormwater management infrastructure
- 7 Biodiversity enhancement and habitat restoration
- 8 Expansion of circular organic waste and compost systems

Main objective:

Creating a self-reinforcing socio-ecological resilience network for long-term climate adaptation.



SPINACETO ■■■■
From data to design-Green Infrastructure + Stormwater Management System

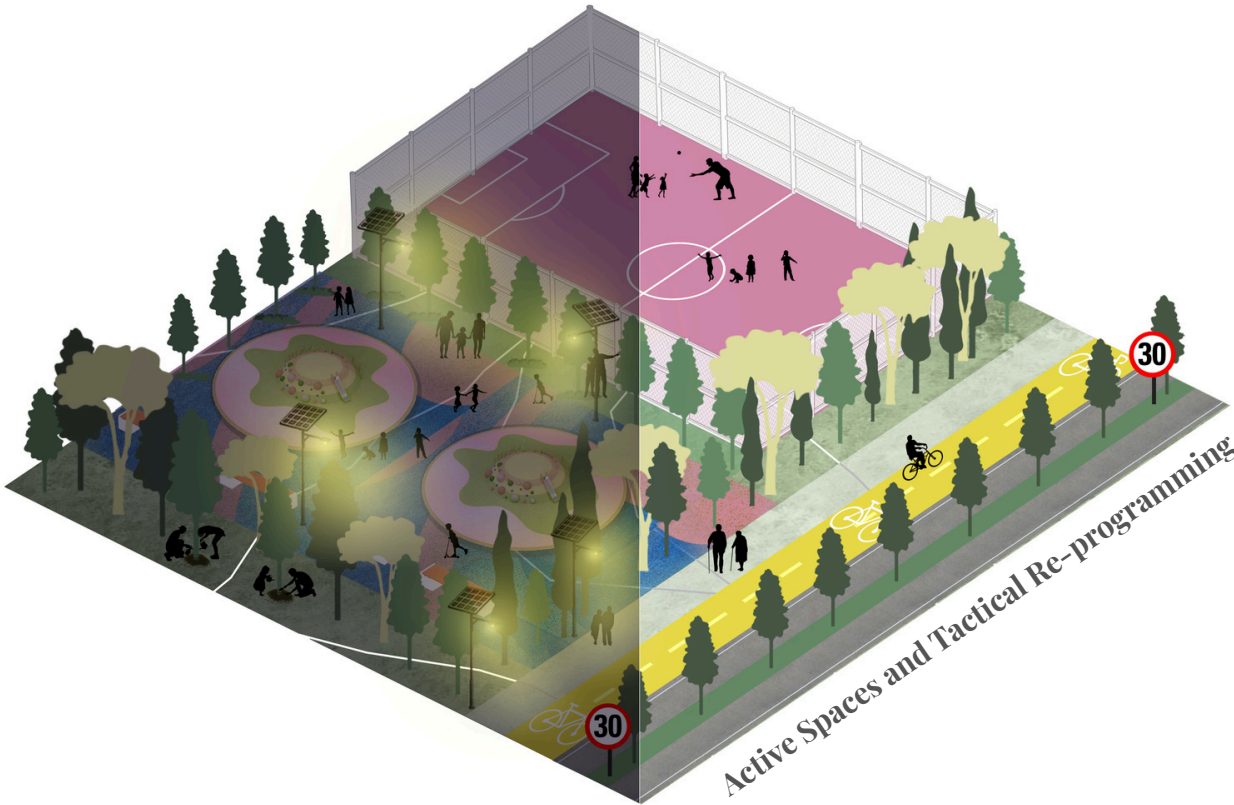


The **green infrastructure framework** is derived from the spatial overlay of NDVI vegetation analysis and LST thermal mapping. Areas of lowest vegetation density and highest surface temperature were identified as priority zones for ecological intervention. The proposed ecological network transforms fragmented green areas into a continuous socio-ecological system that supports biodiversity, urban cooling, habitat restoration, and long-term climate resilience.

Connecting Urban Fragments and Community



The **stormwater management system** is derived from the soil sealing analysis, which identified the concentration of impervious surfaces along mobility corridors and open hardscape areas. These sealed zones generate the highest surface runoff volumes and directly correlate with urban heat island peaks recorded in the LST analysis. The proposed network captures, filters, and reuses stormwater while simultaneously improving urban cooling and ecological performance.



The axonometry highlights the implementation of Solar Lighting infrastructure as a key driver for both safety and environmental performance within the public realm. It also shows the multi-programmatic sports court and recreational hardscape, creating a highly active hub that benefits directly from the enhanced safety and comfort provided by the surrounding infrastructure.



mist cooling



night lighting



solar lighting



rain garden



community gardening



interactive info points



community compost



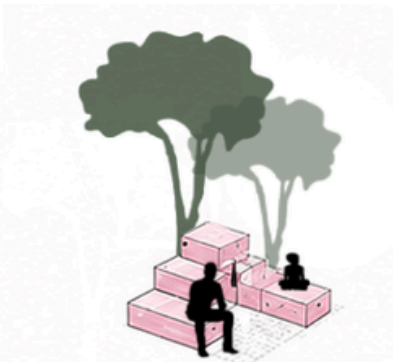
pollinator gardens



school urban farming



school compost stations



modular seating units



tactical play surface



gathering and event spaces

2026

Tactical Ignition: School catalysts & micro-pilot interventions.
Initial efforts targets schools to establish immediate community stewardship. These sites act as pilot labs for climate-adaptive interventions.

- Pilot Activations: Deployment of modular cooling furniture and pop-up greenery in school zones.
- Community Awareness: Launching educational environmental programs for local youth and families.
- Quick Relief: Tactical interventions in critical heat-stress nodes identified by residents.

2027-2028

Systemic Expansion: Park link corridors & active groundscapes.
Establishing the Resilient Spine:
Scaling from pilot schools to the broader neighborhood. This phase connects individual nodes through a continuous green transit infrastructure.
Focus shifts the dysfunctional transit areas and neglected corridors and converting them into shaded micro-mobility paths that mitigate surface heat and manage stormwater.

2029-2030

Regenerative Build: Starting of productive landscapes & circular economy loops.
Implementation of large-scale water-harvesting systems. The framework becomes a self-sustaining ecosystem that evolves with future climatic shifts.

2030+

Adaptive Legacy: Evolutionary management and scalability.

Adaptive Community-Led Regeneration Process

1

THE STARTING POINT

Spinaceto today:

- fragmented green
- overheated surfaces
- underperforming spaces
- weak connections

2

ANALYSIS & DIAGNOSIS

Spatial + environmental analysis combined with community observations.

3

COMMUNITY ENGAGEMENT

Listening to local voices through walks, talks, workshops and digital feedback.

4

STRATEGY FRAMEWORK

From analysis and participation to a shared vision: an adaptive ecological framework for Spinaceto.

5

WHY SCHOOLS FIRST?

Schools are trusted civic anchors, connecting generations and communities. They become the first catalysts of change.

6

PILOT - SCHOOL ACTIVATION

Starting small: gardens, greening, outdoor classrooms, tactical shading, awareness programs.

7

PILOT -NEARBY UNDERPERFORMING PUBLIC SPACES

Extending the impact to adjacent spaces: temporary uses, cooling interventions, community gathering.

8

PILOT- MOBILITY CONNECTIONS

Creating first slow-mobility links between school, public spaces and green areas.

9

GRADUAL EXPANSION

From pilot nodes to a growing network of green and public spaces.

10

NEIGHBOURHOOD TRANSFORMATION

More green, less heat, better spaces, stronger community life.

11

COMMUNITY STEWARDSHIP

Local groups, schools and residents take active role in care, maintenance and ongoing decisions.

12

LONG TERM VISION

An adaptive, resilient and self-sustaining ecological network connecting people of Spinaceto and nature.

9