TERRACES OF CYPRUS

Terraced Landscapes as Socio-Ecological Systems

University Edition

Developed from material

TERRACT

Prepared by Vassiliki Petropoulou Panayiotou

2026

1. Introduction
2. Learning Objectives
3. Terraced Landscapes: Conceptual Foundations
4. Historical Development of Terracing in Cyprus
5. Environmental Context of Cyprus
6. Terraces as Adaptive Environmental Engineering
7. Ecological Functions of Terraces
8. Hydrological Processes
9. Soil Conservation & Sediment Control
10. Biodiversity & Habitat Connectivity
11. Fire Risk & Landscape Stability
12. Cultural Dimensions of Terracing
13. Dry-Stone Construction Techniques
14. Socio-Economic Systems & Collective Management
15. Terrace Abandonment: Causes & Consequences
16. Terraces as Green Infrastructure
17. Climate Change Adaptation & Mitigation
18. Policy & Governance Frameworks
19. EU Sustainability Context
20. Economic Valuation of Ecosystem Services
21. Research Methodologies
22. GIS & Spatial Analysis Applications
23. Structural Stability & Engineering Assessment
24. Community-Based Restoration Models
25. Field Study Guidelines
26. Case Study Framework
27. Discussion Questions
28. Conclusion
29. Suggested Readings & Resources

TABLE OF CONTENTS

Terraced landscapes are among the most significant examples of long-term human-environment interaction. In Cyprus, terraces represent centuries of accumulated ecological knowledge, community labour and environmental adaptation. Far from being relics of the past, terraces are “living socio-ecological systems” integrating:

- Environmental processes
- Cultural heritage
- Economic livelihoods
- Social governance structures

This manual expands the foundational material provided in the TERRACT University Edition into a comprehensive academic framework suitable for undergraduate and postgraduate students in:

- Environmental Science
- Geography
- Sustainability Studies
- Rural Development
- Landscape Architecture
- Civil & Environmental Engineering
- Heritage Studies

1. INTRODUCTION

By the end of this manual, students should be able to:

- Explain terraces as socio-ecological systems
- Analyze their environmental functions
- Evaluate their climate adaptation potential
- Assess policy integration challenges
- Design basic restoration frameworks
- Conduct structured field assessments
- Develop research proposals on terraced landscapes



ETL 2024 Inia Pafos
Photo by Sevina Floridou

2. LEARNING OBJECTIVES



Terraces in Salamiou
Photo by Timmi Tillmann

3. TERRACED LANDSCAPES: CONCEPTUAL FOUNDATIONS

A terrace is a leveled agricultural platform constructed along a slope, typically supported by a dry-stone retaining wall.

Terraces modify:

- Slope gradient
- Surface runoff
- Soil depth
- Microclimate

They represent "intentional landscape engineering".



Living Terraced Landscape
Photo by Glyn Edwards

3.1 WHAT IS A TERRACE?

Terraces function as integrated systems where:

Ecological	Social
Soil cycles	Community labour
Hydrology	Shared maintenance
Biodiversity	Traditional knowledge
Microclimate	Land inheritance systems

They are dynamic and functional — not static heritage monuments.

Terraced agriculture evolved due to:

- Semi-arid Mediterranean climate
- Mountainous terrain
- Limited arable land
- Subsistence-based rural economies

Communities developed terraces to:

- ➢ Expand cultivable land
- ➢ Utilize scarce rainfall
- ➢ Prevent soil erosion
- ➢ Ensure food security

Over centuries, terracing became embedded in village social systems.

Foodscape EDTL 2023
Photo by Glyn Edwards



4. HISTORICAL DEVELOPMENT OF TERRACING IN CYPRUS

Cyprus is characterized by:

- Hot, dry summers
- Irregular rainfall
- Steep upland zones
- Thin soils prone to erosion

These constraints necessitated adaptive landscape modification. Terraces were not optional—they were survival infrastructure.



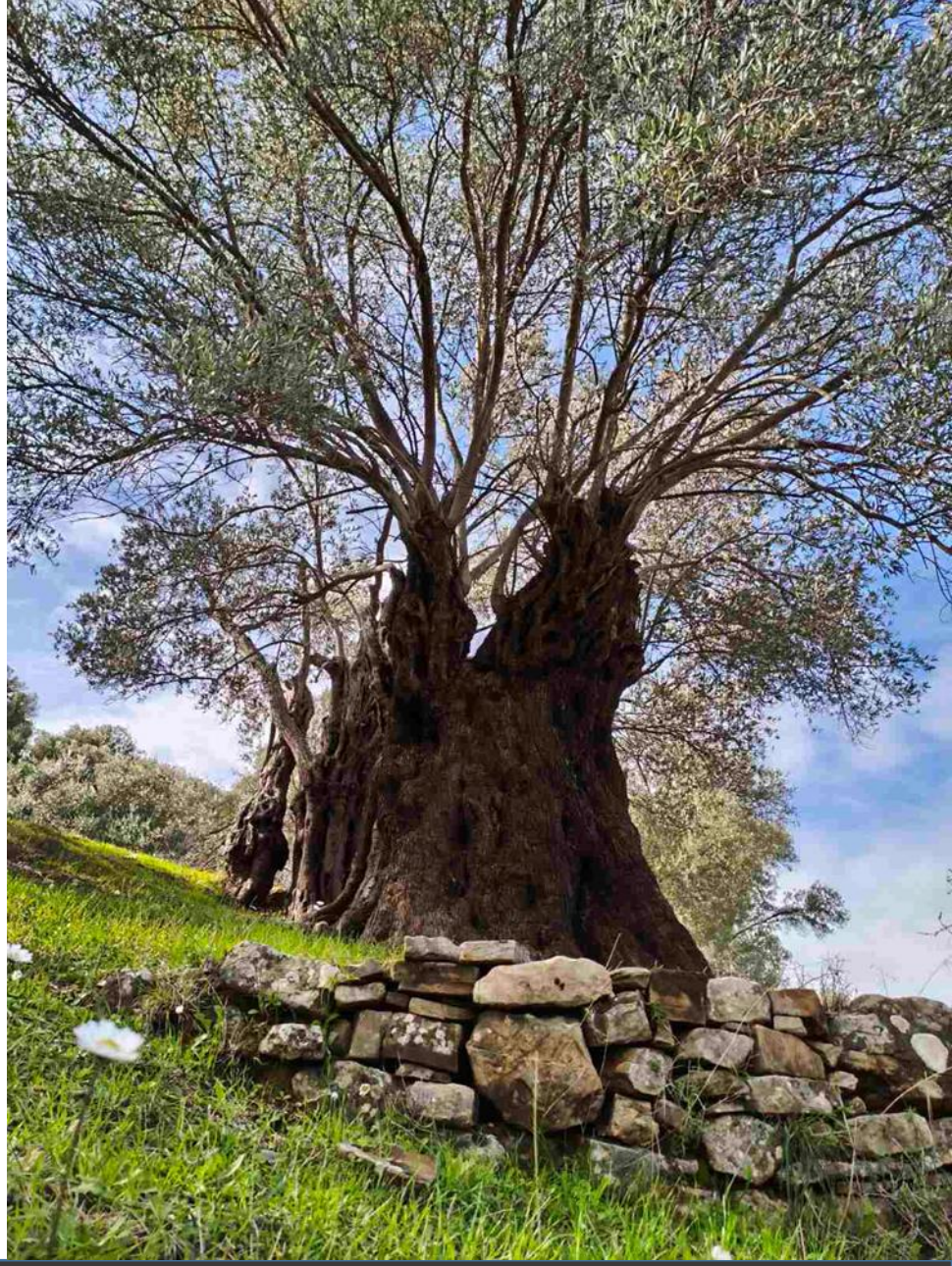
Great Wall of Salamiou Village
Photo by Sevina Floridou

5. ENVIRONMENTAL CONTEXT OF CYPRUS

Terraces alter slope hydrodynamics by:

- Reducing runoff velocity
- Increasing infiltration
- Stabilizing soil mass
- Interrupting erosion pathways

They represent pre-industrial climate adaptation technologies.



Apostolic Olive Trees
Terract Construction of
Dry Stone Walls 2018
Photo by Andri Kedariti

Research demonstrates terraces:

- Reduce sediment transport
- Enhance groundwater recharge
- Support species diversity
- Mitigate slope instability

Their ecological services extend beyond agriculture.



Terraced Landscapes
and Dry Stone Walls
Photo by Timmi Tillmann

7. ECOLOGICAL FUNCTIONS OF TERRACES

Terraces influence water movement by:

1. Capturing precipitation
2. Increasing infiltration time
3. Reducing peak runoff events
4. Supporting aquifer recharge

Abandonment reverses these processes, accelerating degradation.



Terraced Landscape with Dry stone wall and almond tree in bloom
Photo by Andri Kedariti

8. HYDROLOGICAL PROCESSES

Without terraces

- Rainfall removes topsoil rapidly
- Gullies form
- Agricultural productivity collapses

Terraces:

- ➢ Act as sediment traps
- ➢ Preserve nutrient-rich topsoil
- ➢ Slow erosive forces



EDTL 2023 Kamilostrata
Photo by Misti Springer

9. SOIL CONSERVATION & SEDIMENT CONTROL

Terraces create microhabitats through:

- Stone wall cavities
- Edge environments
- Diverse crop mosaics

They function as biodiversity corridors across fragmented terrain.

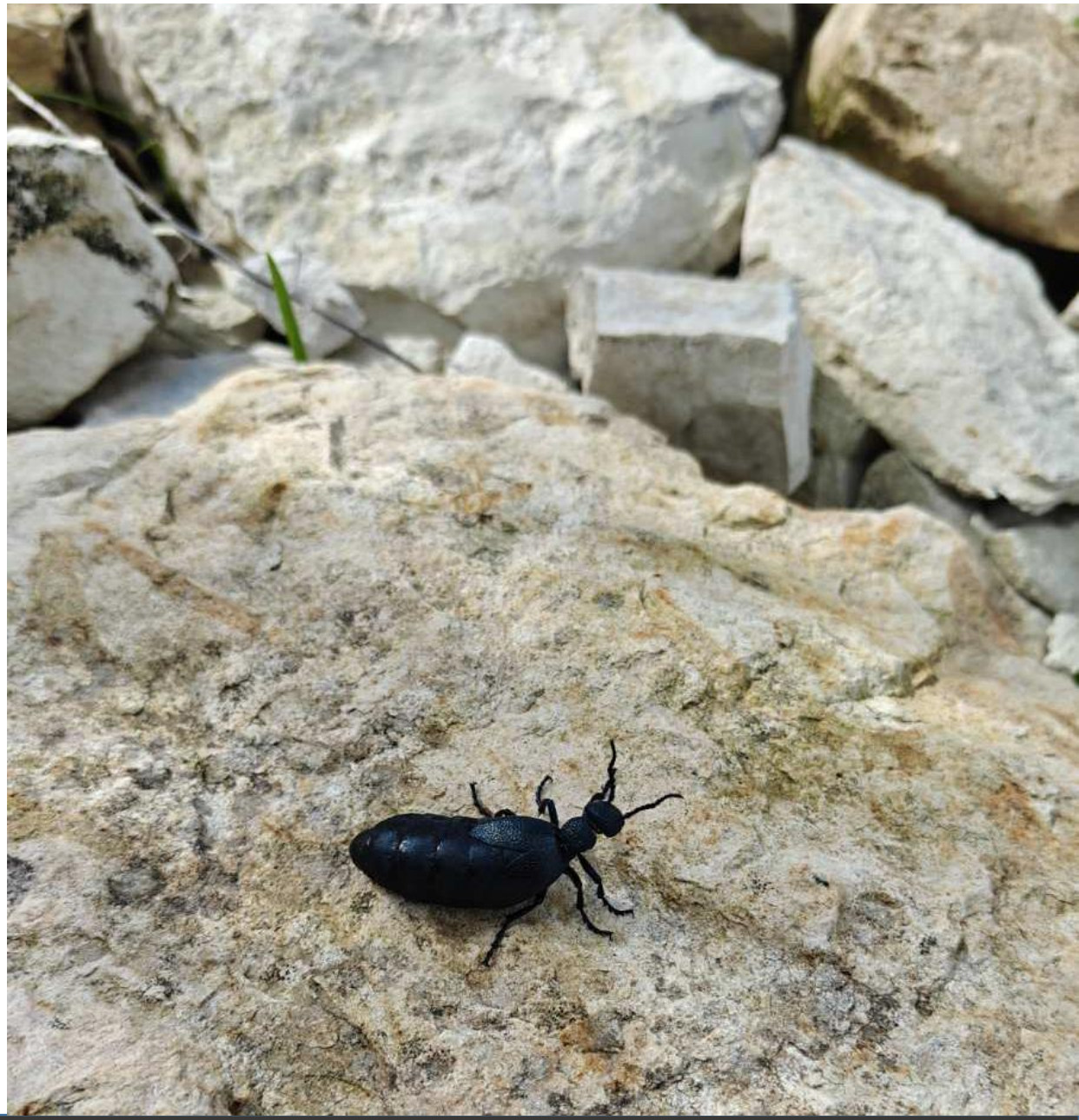


Photo by George Papageorgiou

10. BIODIVERSITY & HABITAT CONNECTIVITY

Maintained terraces:

- Reduce fuel continuity
- Interrupt fire spread
- Support managed vegetation

Abandoned terraces:

- Accumulate dry biomass
- Increase wildfire intensity
- Accelerate land degradation



Salamiou with a plethora of
Almond trees
Photo by Andri Kedariti

11. FIRE RISK & LANDSCAPE STABILITY



Burnt land, Cyprus
Photo by Glyn Edwards



Burnt land, Cyprus
Photo by Glyn Edwards

Terraces embody:

- Intergenerational knowledge
- Craftsmanship traditions
- Collective identity
- Ritual and agricultural calendars

Dry-stone techniques are intangible cultural heritage.



Photo by Donatella Murtas
President of ITLA, Italy
1990, Limassol, Cyprus

12. CULTURAL DIMENSIONS OF TERRACING



Clay large urns, Pitharia, used to store wine or grain
from the fertile land of the Terraced Landscapes
Photograph by Yiannis Patsalos

12. CULTURAL DIMENSIONS OF TERRACING

Characteristics:

- No mortar
- Interlocking stones
- Inclined batter walls
- Drainage gaps

Structural stability depends on:

- Foundation depth
- Wall thickness
- Stone selection
- Proper backfilling



ETL Inia 2024
Photo by Sevina Florida

13. DRY-STONE CONSTRUCTION TECHNIQUES

Terraces require:

- Collective labour exchange
- Informal governance systems
- Seasonal coordination
- Shared maintenance obligations

Their decline and abandonment correlates with rural depopulation.



14. SOCIO-ECONOMIC SYSTEMS & COLLECTIVE MANAGEMENT

Causes

- Urban migration
- Agricultural modernization
- Market shifts
- Aging rural populations

Consequences:

- Wall collapse
- Accelerated erosion
- Biodiversity loss
- Increased fire vulnerability

Burnt land
Photo by Glyn Edwards EDTL 2023



15. TERRACE ABANDONMENT: CAUSES & CONSEQUENCES

Under TERRACT, terraces are reframed as:

- Climate adaptation infrastructure
- Biodiversity corridors
- Cultural ecosystem service providers
- Rural resilience systems

This bridges heritage and environmental policy.

Photo by Glyn Edwards EDTL 2023



16. TERRACES AS GREEN INFRASTRUCTURE

Terract

The Terraced Landscape as Teacher

Terraces teach us patience.

Dry stone walls teach us balance.

Village life teaches us cooperation.

Every stone depends on the other stones

Just as every person in a community does.

Terract brings these lessons into modern life.

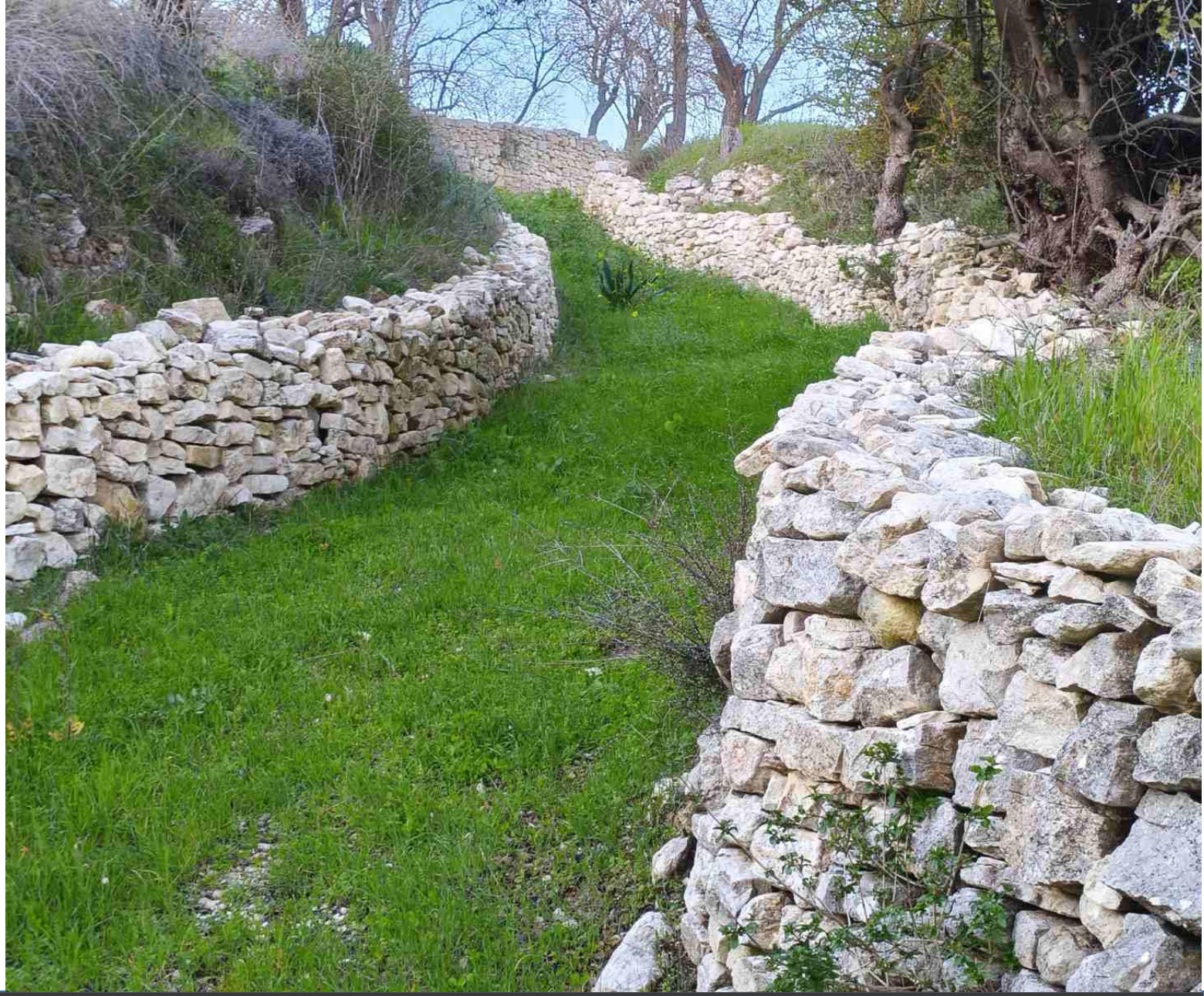
Photo by Demetris Loutsios,
Art Explora Festival Limassol,
2025



Terraces contribute to:

- Carbon sequestration in soils
- Microclimate buffering
- Flood mitigation
- Landscape cooling

They are nature-based Solutions.



Kamilostrata,Salamiou
ETL 2023-2024
Photo by Andri Kedariti

17. CLIMATE CHANGE ADAPTATION & MITIGATION

Terrace restoration intersects

with:

- Rural development policy
- Cultural heritage protection
- Climate mitigation strategies
- Integrated governance models

Policy fragmentation remains a key challenge.



ETL Inia 2024
Photo by Sevina Floridou

Terraces align with:

- EU Green Deal principles
- Biodiversity Strategy
- Soil Strategy
- Climate Adaptation Strategy

Integrated funding streams are necessary for long-term viability.



ETL 2025 Lagria Tavern
Photo by Vas Petropoulou Panayiotou

19. EU SUSTAINABILITY CONTEXT



ETL 2025 Lagria Winery, Salamiou, Terraced Landscapes as Foodscapes, Herb Harvest Table
Photo by Vas Petropoulou Panayiotou

19. EU SUSTAINABILITY CONTEXT

Terraces provide:

- Provisioning services (crops)
- Regulating services (erosion control)
- Cultural services (heritage, tourism)
- Supporting services (soil formation)

Valuation methods include:

- Cost-benefit analysis
- Avoided damage costs
- Willingness-to-pay studies
- Payment for ecosystem services models



Terract products,Almond Festival,
Salamiou 2025,
"From Our Terraces To Your Table"
Photo by Vas Petropoulou Panayiotou



Terract products. Lagria Tavern, Salamiou Village "From Our Terraces To Your Table"
Wine, Almonds, Raisins, Herbs
Photo by Vas Petropoulou Panayiotou

20. ECONOMIC VALUATION OF ECOSYSTEM SERVICES

Students may explore:

- Field surveys
- Participatory rural appraisal
- Hydrological modeling
- Soil sampling
- Remote sensing
- Archival research



Student interaction
Biennale Architecture 2025, Venice
Cypriot Pavilion
Photograph from Gaestano Di Gregorio

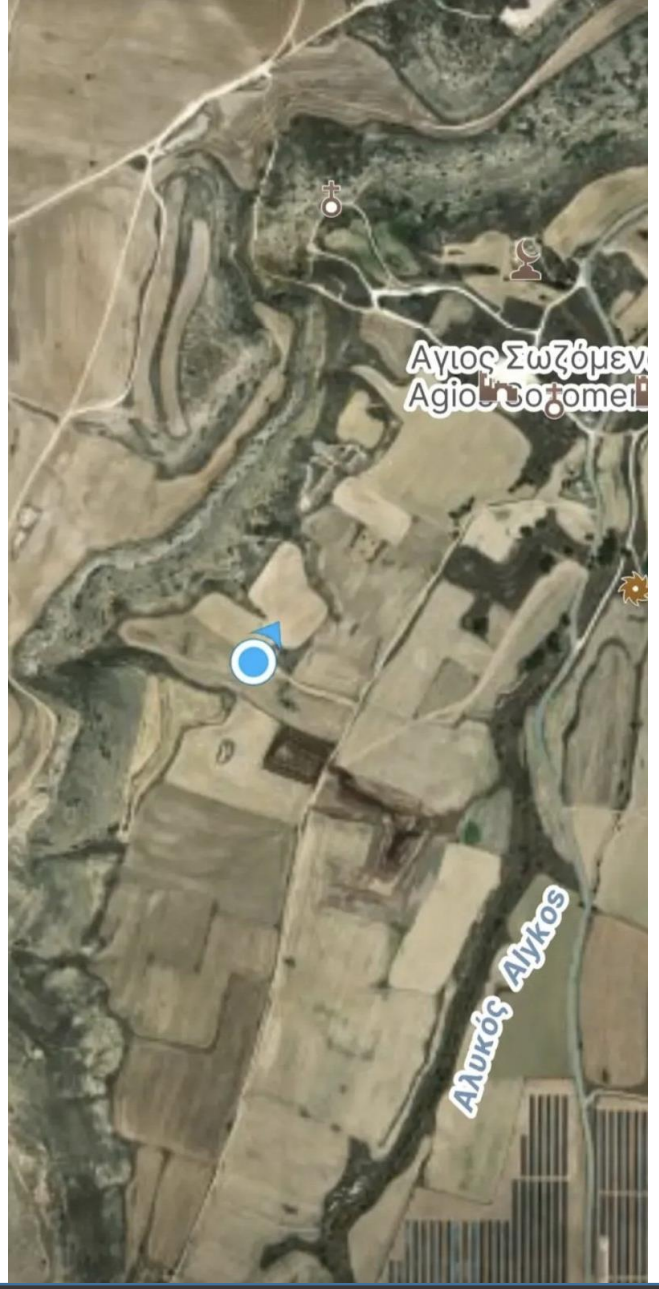
21. RESEARCH METHODOLOGIES

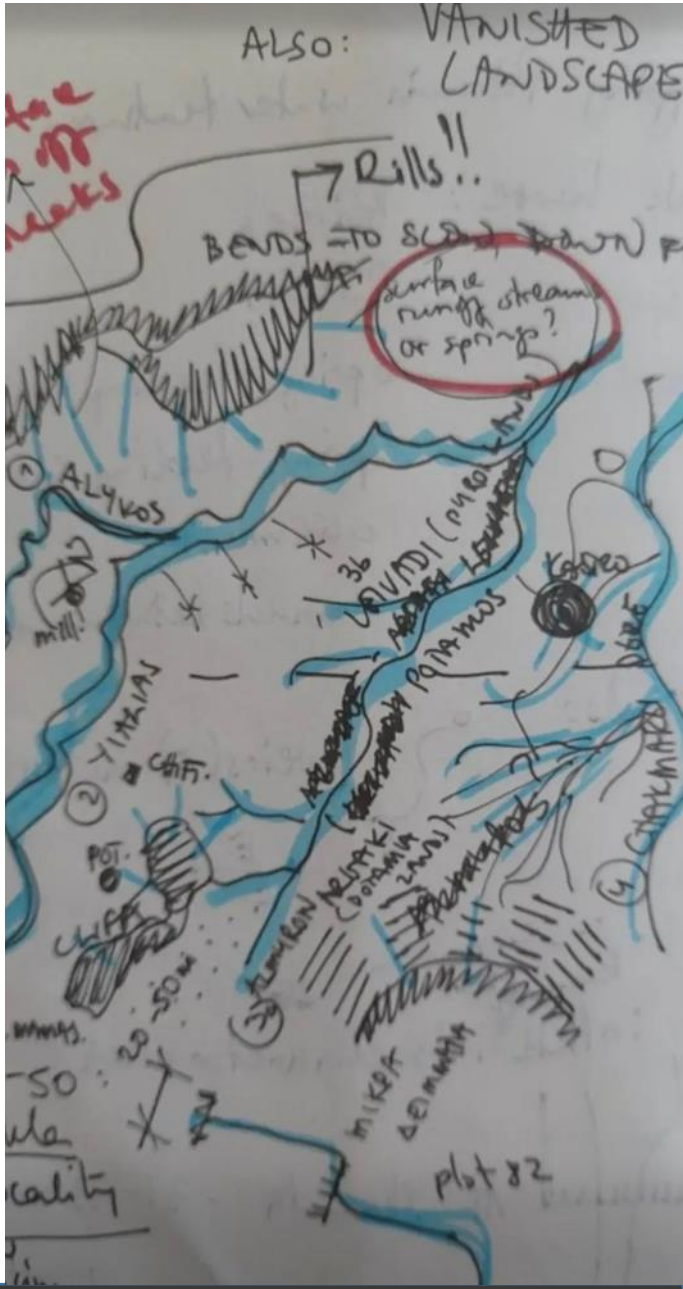
Applications:

- Mapping abandonment patterns
- Slope gradient modeling
- Erosion risk simulation
- Land-use change detection

GIS enhances evidence-based restoration planning.







Drawing and photo by Sevina Floridou

22. GIS & SPATIAL ANALYSIS APPLICATIONS

Engineering evaluation includes:

- Wall inclination measurement
- Bulging analysis
- Drainage functionality
- Foundation exposure

Risk classification systems can prioritize interventions.



Great Wall in Salamiou
Photo by Sevina Floridou

23. STRUCTURAL STABILITY & ENGINEERING ASSESSMENT

Successful restoration depends on:

- Local stakeholder engagement
- Financial incentives
- Skills transmission
- Youth involvement
- Policy integration

Top-down approaches alone fail.



Stone masons from Salamiou in Italy
2024
Photo by Sevina Floridou

24. COMMUNITY-BASED RESTORATION MODELS

During site visits to the Environmental Education Centre:

Students should:

- Observe wall construction
- Analyze slope orientation
- Evaluate maintenance status
- Assess vegetation cover
- Consider restoration feasibility

Field notes should include sketches and geospatial references.



ETL 2025 Distrata Salamiou
Photo by Vas Petropoulou Panayiotou

25. FIELD STUDY GUIDELINES

Students should structure case studies around:

1. Environmental context
2. Historical development
3. Current condition
4. Socio-economic drivers
5. Restoration potential
6. Policy implications



26. CASE STUDY FRAMEWORK

1. Are terraces heritage assets or climate infrastructure?
2. Can ecosystem services justify public investment?
3. How can rural youth be re - engaged?
4. Should terrace restoration be mandatory in erosion-prone zones?
5. How can governance fragmentation be overcome?



ETL 2025 Distrata Salamiou
Photo by Sevina Floridou

27. DISCUSSION QUESTIONS

Terraced landscapes in Cyprus represent:

- Long-term adaptive engineering
- Community-based environmental governance
- Climate-resilient infrastructure
- Cultural heritage systems

Their restoration is not nostalgia—it is strategic sustainability.

The integration of ecology, policy, engineering and social systems is essential for their future.



Photo by Demetris Loutsios,
Art Explora Festival Limassol, 2025

28. CONCLUSION



The project was presented in the framework of the Limassol stopover of the Art Explore Festival, curated by The Island Club.
Photo by Demetris Loutsios, Art Explora Festival Limassol, 2025

www.LagriaRandB.com

Living Landscapes Education Series Book 4