Historic Terraces as Sustainable Landscapes

Newcastle University | Centre for Landscape

Terraces as sustainable agricultural environments

Sustaining soils, mitigating climate impacts, supporting identities

Agricultural terraces are used across the world to grow cereals, fruit and vegetables, vines and trees. Terraces can be irrigated for crops which need careful water management. In dry-land farming, they create deeper soils with improved root penetration and water retention. They increase the level surface for crops and livestock.

Terraces have benefits for soil management and help control moisture levels. Cutting-edge scientific dating, geoarchaeology and computer modelling enable us to examine the benefits of ancient terraces in new ways. We now understand better how terrace systems have impacted positively on landscape management over the long term.

Landscape means "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (Council of Europe Landscape Convention). Terraced landscapes provide diverse benefits for nature and people.

European terraced landscapes are ancient

- terraces date from the Bronze Age (1500 BCE) →
- many terraced landscapes are over 1000 years old
- terrace systems can be very stable environments

Terraced landscapes have societal value

- historic terraces shape local landscape identity
- terraces enhance landscape character and quality

Terraces limit soil erosion and flood risks

- climate change and removal of historic features increase soil erosion and flood risks
- historic terraces help alleviate soil erosion and flooding

Restoring and recreating terraces helps prepare communities for future change

- restoring or re-creating terraces reduces flood risk
- good management of terraces helps protect soil
- terraces support landscape diversity and habitats
- good quality landscapes support a wider range of economic opportunities
- combining terraces with other historic land-uses (e.g. agro-forestry) multiplies benefits for people and nature

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THE RESEARCH BASE

- Fieldwork addressed origins, use and benefits of terrace systems in 15 European case studies
- A new protocol to characterise terrace sediments using optically-stimulated luminescence profiling and dating (OSL-PD) provides accurate dates for the construction and use of terrace systems.
- Integrated geoarchaeological analyses examined terrace development and changing agricultural practices.
- Historic landscape characterisation (HLC) and GIS-based spatial analysis used to model soil loss and flooding.
- Participatory workshops revealed social and economic value of terrace systems to local communities.

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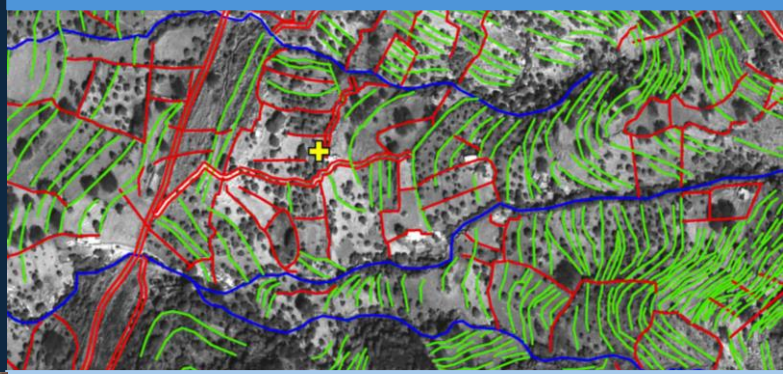
Knowledge of past landscapes can be used to model scenarios of change and inform sustainable strategies for future land management.

Understanding historic terraces can help us to evaluate long-term sustainability in agricultural practice and policy. The EU Common Agricultural Policy led to more intensive farming in the Mediterranean, including land-levelling, the introduction of new crops like vines and almonds. Mechanisation led to new terracing methods with less stable, bulldozed 'bench' terraces.

This change from pre-20th century methods had major environmental consequences, causing widespread erosion, ecological impacts, and damage to soil health and drainage. Learning how historic periods of transformation impacted the land is essential to underpin future sustainable land-use and create informed policies for future resilience, particularly with increasing demand for food and climate instability.



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