



# Solar powered energy and eco-efficiency in a UNESCO site. Criteria and recommendations for the National Park of Cinque Terre, Italy

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## ABSTRACT

The reduction of energy consumption and of polluting emissions as well as the improving of residential standards (potentially contrasting outlooks) are more and more frequently involving the architecturally created environment and landscapes of considerable renown - initially excluded from obligatory compliance with existing regulations. Conflicts tend to increase in such circumstances, since technical knowhow must aim at reconciling with objectives of a more widely cultural nature (safeguarding of and respect for the environment, authenticity of material and identification of built heritage). The experience of the research presented refers to a particularly sensitive site, placed under the protection of the state and interested international agencies. It is among the most representative of the whole of Italy: The National Park and UNESCO site of the Cinque Terre, Porto Venere and the archipelago of the islands Palmaria, Tino and Tinetto in the extreme east of Region Liguria. The research, both methodological and operative, offers elements useful to the understanding and solution of issues relating to the recovery of simple rural buildings and the improvement of thermal performance and energy supply, especially on sites isolated from network installations. Particular in-depth study is dedicated to 1) identification of criteria to better integrate solar technologies for energy production in rural buildings, for end consumer utilization (owners and technicians), as well as 2) local government and safeguarding agencies called upon to evaluate acceptability.

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## 1. Introduction: territorial recovery and improvement of eco-efficiency on a UNESCO site

The phenomenon of urbanism marking the second half of the twentieth century deeply altered extra-urban areas too. In an iniquitous way it exploited in peri-urban areas and progressively led to abandon in hilly and mountainous strips. Long before the affirmation of the global city, the discontinuity and contradictions of the «Short Twentieth Century» [15] had already emphasised the conflict between development and cultural identity. All came complete with phenomena of physical abandon—not to mention cultural oblivion—of territories formerly witnesses of stories of misery long-past and recent, of poverty and fatigue. The culminating point was reached in negating that concept of “territoriality”, which historically governed the ways of inhabiting and living in a community.

Conversely, the UNESCO site Cinque Terre, Porto Venere and the islands Palmaria, Tino and Tinetto, in the extreme east of Region Liguria stands as one of the foremost examples of safeguarded landscapes. Given its particular morphology, its relative difficulty of

access and a protection policy dating back to even before the Second World War, the territory has managed, in part, to save itself from twentieth-century transformations pursuant to industrialized society.

The National Park today constitutes one of the most significant testimonies of a thousand-year old civilization of habitation. In their daily fatigue inhabitants succeeded in moulding and fashioning a harsh territory so as to obtain a somewhat charming terraced landscape. The interaction between ways of living and natural context has yielded a type of environmental ecosystem which has continued to evolve for more than a thousand years. In exemplary fashion this is the very embodiment of “territoriality” as meeting point of consciousness and knowledge together stratifying signs and meanings - the object of collective memory [14]. (Figs. 1–2).

What is more, the relations established between society and territory, the artificial moulding of an arduous (at the end of the day agricultural) terrain and the ways in which past civilizations organized themselves to produce their own material life (as well as giving form and space to a unique environment) have contributed to constituting that idea of “landscape” we are still anchored to today [7, p. 69].

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**Fig. 1.** The terraced landscape of Cinque Terre UNESCO site.



**Fig. 2.** The landscape of Cinque Terre.

Territorial agencies and organisms appointed specifically to safeguard policies pertinent to their protecting role promote awareness activities among the inhabitants—as laid down by the European Landscape Convention. The Park Body has, for example, favoured development initiatives in the search for a delicate balance between economic competitiveness and the maintenance of the quality of the landscape. Incentives point to activation of virtuous mechanisms based on long term sustainability, aimed at giving rise to a “resilient” social system. Alongside tourists, residents have, thus, once again become involved; it is not without difficulty that they materially contribute to the recovery of the typical landscape, rich in vines and single-crop farming.

The crucial issue of the UNESCO site is, in fact, its conscious management of the questionable balance between the preservation of its constituent features and renewal - often in conflict

rather than in harmony with each other. Just think of the problems arising out of tourist over-crowding on the country paths and the difficult recovery of isolated rural settlements or very small groups of buildings which persist in those parts of the area distant from route networks—still devoid of connections for electricity, gas and water installations, not to mention liquid disposal. Historically this has not prevented the creation of temporary, agriculture-based facility forms satisfying comfort expectations and conditions—contrasting starkly with those of contemporary demands.

In such contexts, recovery projects designed for residence or agricultural facility are more and more frequently making provisions for the installation of solar energy devices for autonomous energy consumption. Especially on the part of agencies appointed to safeguard the landscape, these requests have opened up new

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